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A  
DESCRIPTION

Of some curious and uncommon

CREATURES,

Omitted in the DESCRIPTION of Three Hundred ANIMALS, and likewise in the Supplement to that Book; designed as an Addition to those two Treatises, for the Entertainment of young People.

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Compiled by the same Hand.

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Boreman (T.)

In which is Included,

The NATURAL HISTORY of those great Curiosities, The *CHIMPANZEE*, Male and Female, brought from *Angola*, on the Coast of *Guinea*, and lately publicly shown in *London*.

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Illustrated with Sixteen Copper-Plates, whereon is neatly Engraven the Figure of each ANIMAL.

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L O N D O N :

Printed for RICHARD WARE, at the *Bible and Sun* in *Amen-Corner*; and THOMAS BOREMAN Book-feller, in *Guildhall*. MDCCXXXIX.





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## ERRATA.

Page 24 *line 5. read*, by several seemingly rational and diverting little Actions. Dele the *l* in *Salvage* wherever it occurs, and the *e* in *Humane* where 'tis wrong. — And there are some others in the Book, which the candid Reader is desired to Correct.


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I

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A  
NATURAL HISTORY  
OF THE  
Male *P Y G M Y*,  
O R  
*CHIMPANZEE*:

EXTRACTED

From the late Dr. T Y S O N's curious  
Anatomical Account of this surprising  
Animal.

**I**T is thought by the Learned, that the *Pygmies* of the Ancients were a sort of *Apes*, and not of Humane Race, and if they were only *Apes*, then in all Probability our *Ape* may be a *Pygmy*; a sort of Animal so much resembling Man, that both Ancients and Moderns have reputed it to be a Puny Race of Mankind, call'd to this Day, *Homo Sylvestris*, the Wild-Man; *Orang-outang*, or a Man of the Woods; by the *Africans*, *Quoias-Morrou*; by others, *Baris*, or *Barris*; and by the *Portugueze*, the *Salvage*.

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But

But observing that under these Names they describe different Animals, for Distinction sake, and to avoid Equivocation, we shall call the Subject, of which we are about to give the History, a *Pygmy*, from its Stature ; which was found to be just the same with the Stature of the *Pygmies* of the Ancients : Notwithstanding our *Pygmy* does so much resemble a Man in many of its Parts, more than any of the *Ape* kind, or, perhaps, any other Animal in the World, yet by no means is it to be lookt upon as the Product of a mixt Generation ; 'tis a Brute Animal, *sui generis*, and a particular Species of *Ape*.

The Male of this Kind was dissected by Dr. *Edward Tyson* about Forty Years ago : It was brought from *Angola* in *Africa*, but was first taken a great deal higher up in the Country, and in Company with it there was a Female of the same Kind. He says, he was assured by some Sea-Captains and Merchants, that they had seen a great many of them in *Borneo*, *Sumatra*, and other Parts. The Female, that was lately publicly shown in *London*, call'd the *Chimpanzee*, was brought likewise from *Angola*, and undoubtedly is of the same Species with the Male of Dr. *Tyson* ; which Creature was the most gentle and loving to Man that could be : Those that he knew a Ship-board he would come and embrace with the greatest Tenderness, opening their Bosoms, and clasping his Hands about them ; and tho' there were Monkies aboard, yet 'twas observed he would never associate with them, and as if nothing a-kin to them, would always avoid their Company. The Female *Chimpanzee* shew'd the like kind Affections to those Persons it was used to, particularly a Boy, whom it would never suffer to go out of its Sight ; but would cry, and express the greatest Uneasiness till he return'd ; and for the sake of pleasing and diverting it, they were obliged to keep him 'till the Creature died.

The



The Male *Pygmy* was very hairy all behind, from the Head downwards, and the Hair so thick, that it covered the Skin almost from being seen ; but in all Parts before, the Hair was much thinner, and the Skin every where appeared, and in some Places it was almost bare. Nature therefore has cloathed it with Hair, as a Brute, to defend it from the Injuries of the Weather ; and when it goes on all Four, it seems all hairy : When it goes erect, upon two Feet, it appears, before, less hairy, and more like a Man. After this Creature was taken, and a little used to wear Cloaths, it was fond enough of them ; and what it could not put on himself, it would bring in its Hands to some of the Company to help him to put it on. It would lie in a Bed, place his Head on the Pillow, and pull the Cloaths over him, as a Man would do ; but was so Careless, and so very a Brute, as to do all Natures Occasions there. I take this Animal to be of the same Kind with that mentioned by *Fr. Leguatt* in his Voyage to *India*, call'd by the People of *Java*, where it is found, *Le Saphir*, and of which he relates much the same Account as to its Actions. It was very full of Lice when it first came on Shore, which it may be it got on Ship-board, for they were exactly like those on Humane Bodies. *I had an Ape brought me from Barbary, that was full of the same kind of Vermine.*

The Hair of this *Pygmy*, or wild Man, was of a Coal black Colour, and strait ; and much more resembling the Hair of Men than the Furr of Brutes. For in the Furr of Brutes, besides the long Hair, there is usually a finer and shorter Intermixt : Here 'twas all of a Kind ; only about the *Pubis* the Hair was greyish, seemed longer, and somewhat different ; so on the upper Lip and Chin, there were greyish Hairs like a Beard : And they say, that once it held the Bason itself, to be trimmed. The Face, Hands,

and Soles of the Feet were without Hair, and so was most Part of the Fore-head ; but down the Sides of the Face 'twas very hairy, the Hairs there being about an Inch and half long, and longer than in most Parts of the Body besides. The Tendency of the Hair all over the Body was downwards, but only from the Wrists to the Elbow 'twas upwards ; so that at the Elbow, the Hair of the Shoulder, and of the Arm, ran contrary to one another. Now in four-footed Beasts, the Hair in the Fore-limbs has usually the same Inclination downwards, and it being here different ; it suggested an Argument, as if Nature did Design it for a *Biped*, or two-footed Creature : The Hair on the backside of the Hands did run transverse, inclining to the outside of the Hands ; and those of the hinder-sides of the Thighs were transverse likewise.

Its Face was more like a Man's than *Apes* and *Monkies* Faces are ; for its Forehead was larger and more globous, and the upper and lower Jaw not so long or prominent, and more spread ; and its Head more than as big again as either of theirs : Indeed the Nose was flat like an *Ape's*, not protuberant as a Man's ; and on the outside of each Nostril there was a little slit turning upwards, as in *Apes*. As to the Ears, none could more resemble those of a Man than this Animal's, both as to the Largeness, Colour, Shape, and Structure, excepting that they did not lie so flat to the Head as they do in a Man ; but that may be owing to the Custom of Binding our Heads, when Infants. Its Teeth resembled a Man's more than do those of *Apes* and *Monkies*.

In this Creature the Hair of both Eye-lids appeared fair and plain, but not so large as in Men. The Hair of the Eye-brows seem'd to be rubb'd off, which might be occasioned by the jutting out of the Cranium in that Place more than in Men, which

## Curious ANIMALS.

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is a provident Provision of Nature for the better Safe-guard of the Eyes, and their Defence from the Injuries they might otherwise receive in the Woods. It had Hair in the Arm-pits, and that in the *Pubis* seemed somewhat different from what grew on the rest of the Body, being not so strait but somewhat curled; and greyish, not black. The Breasts of the Male *Pygmy* were small and thin, and not protuberant; the two Teats appeared very plain, and were exactly situated as they are in Men.

The Curvature, or Flexion of the Arms and Legs in this Animal, as also in *Apes* and *Monkies*, is just the same as in Man, the Arms bending forwards; and the Legs backwards; whereas in other Brutes, the Flexion of the fore and hinder Legs is both the same Way. The Hand of this Creature was different from a Man's, in that the Palm was much longer; so the Thumb too was less than the other Fingers; whereas in a Man the Thumb is usually thicker than the rest of the Fingers: In both these Respects, it more resembled the *Ape* kind: But the Fingers of our *Pygmy* being so much bigger than those of *Apes* and *Monkies*, and its Nails being broader, and flatter, on both these Accounts it was liker a Man. In the Palms of its Hands were remarkable those Lines which are usually taken Notice of in Palmistry, and at the Ends of the Fingers were those spiral Lines which are usually in a Man's. The Palms of the Hands and the Soles of the Feet of this Animal, were equally long, and longer, proportionably, than in Man; and herein it resembled more the *Ape* kind: As it did likewise in the Length of the Toes, which were as long as the Fingers, as also in having the middlemost Toe longer than the rest. For in the Hand of a Man, the middle Finger is the longest, but in the Foot the middle Toe is not: Besides the length of the Toes, in this Animal, being like Fin-



gers, it had the great Toe, like the Thumb, set off at a Distance from the range of the other Toes : Therefore this Part, in its Formation and Function too, being liker a Hand than a Foot ; for the distinguishing this sort of Animal from others, might it not be reckoned and called rather a *Four-handed* than a *Four-footed* Animal ? And as it uses its hinder Feet upon any Occasion, as Hands, so likewise it would make use of its Hands to supply the Place of Feet. But when it went as a *Quadruped* on all Four, 'twas awkwardly ; not placing the Palm of the Hand flat to the Ground, but it walk'd upon its Knuckles, as it was observed to do, when weak, and when it had not Strength enough to support his Body in an erect Posture. So that this Species of Animals hath the Advantage of making use of their Feet for Hands, and their Hands for Feet, as there is Occasion. The Navel appeared very fair, and in the exact Place as 'tis in Man ; not prominent nor harder, but in all Respects the same.

Nature designed this Animal not always to live on the Ground, but to get its Prey in the Trees likewise ; it hath, therefore, very wisely formed the Foot like a Hand, by which means it can more easily climb them ; and, when there, shift much better by this Contrivance.

Travellers relate, when first *Apes* or *Monkies* are taken, to learn them to go erect, 'tis usual to tye their Hands behind them. And I am of Opinion, that naturally they go more on all Four than erect. But whether 'tis so in our *Pygmy*, I suspect ; since walking on its Knuckles, as this Animal did, seems no natural Posture ; and 'tis sufficiently provided in all Respects to walk erect. This Creature, most certainly comes much nearer to a Man, in the Structure both of the outward and inward Parts, than either *Apes* or *Monkies* ; yet in a great many Things is very different ;





*Pa. 7.*

*Fig. 2.*



*The Back-Parts of the Male Pygmy.*

ferent ; but where it is so, there it resembles an *Ape*.

The Male *Pygmy*, from the Top of the Head to the Heel of the Foot, in a strait Line, measured Twenty-six Inches ; the Girth of the Body in the biggest Part was sixteen Inches ; over the Loins 'twas ten Inches about ; the Compass of the Head over the Eyes and Ears thirteen Inches and a half ; from one Corner of the Mouth to the other, two Inches and a Quarter ; the Length of the Arm, from the Shoulder to the end of the Fingers, seventeen Inches ; the Girth of the Shoulder, about the Middle, four Inches and a Quarter ; of the Arm near the Elbow, five Inches. From these Dimensions of some of the external Parts, you will the better conceive the exact Shape of this wonderful Animal.

The first Figure represents the Creature erect, where you have a View of all the fore Parts : Being weak, the better to support him, there is given him a Stick in his Hand. The Head here is large and globous, the Ears standing off, not lying close : The Face looks like an old wither'd Man's, which, without doubt, was render'd much more so by an Ulcer it had in one of its Cheeks, occasioned by a Fall it had on Ship board upon a Cannon, which forced out one of its Teeth ; and the Jaw-bone afterwards proving carious, it might hasten its Death. The Eyes were a little sunk, the Mouth large, the Teeth perfectly Humane, the Face was without Hair, and the Colour a little tawny ; the Skin on the rest of the Body was white.

The second Figure represents the hinder Parts of this Animal in an erect Posture likewise, where may be observed, the Globous Figure and largeness of the Head, with the Ears standing off ; the curious Shape and Straitness of the Back, and how it spreads. At the Os *Coxygis* there is a little Protuberancy, but nothing like a Tail.

In



In this Figure he is represented with the Fingers of one Hand bended, as if kneeling upon his Knuckles to shew the Action, when he goes on all Four : For the Palms of his Hands never touch the Ground ; but when he walks as a *Quadruped*, 'tis only upon his Knuckles. The other Hand is holding a Rope, to shew his Climbing, for he will nimbly run up the Tackling of a Ship, or climb a Tree : And having this hold, he is the better supported to shew the Sole of the Foot and the Heel there ; on Account of which Heel it may be thought a Foot : But the great Toe being set off so far from the range of the other Toes, and they all being so large and long, it more resembles a Hand, as has been observed.

We have seen upon what Accounts our *Pygmy* may be thought not to be a *Quadruped*, or Four-footed Creature, or that its natural *Gression*, or walking, is not on all Four, and how ill it is provided to go that Way. We will now enquire whether there is not more reason to think that Nature designed it to be *Biped*, and to walk erect ; and in the doing this, we may observe the Largeness of the Heel-Bone in the Foot, which being so much extended, sufficiently secures the Body from falling backwards, as the Length of the Toes does its being cast too forwards ; and the Arms being so long, may easily give a Poise either way, for preserving the *Æquilibrium* of the Body. Next, if we consider the *Articulation* of what the Anatomists call the *Os Femoris* in the *Acetabulum*, there is no difference to be observed from a Man, nor indeed in any other Circumstance that relates to this Matter. 'Tis true, in the first Figure, he is represented as weak, feeble, and bending : For when Dr. *Tyson* first saw him, he was dying ; besides, being young and ill, it had not that Strength in its Limbs as in Time and in Health, it might have acquired ; and he was willing to represent  
sent







*The Skeleton of the Pygmy.*

sent it as it then appear'd to him. But what very much inclined him to think it a *Biped*, and to go erect, and that Nature did design it so, much more than any of the *Ape* and *Monkey* Kind besides, was from observing the *Peritonæum* to be entire, and not perforated or protruded in the Groin, as it is in *Apes* and *Dogs*, and other *Quadrupeds*: As likewise, because he found the *Pericardium* in this Creature to be fastened to the *Diaphragm*, as it is in Man, and which is not so in *Apes* and *Monkeys*: Both which are so remarkable Differences, and so particularly contrived for the Advantage of an erect Posture of the Body, that, we may safely conclude, Nature intended it a *Biped*, and hath not been wanting in any thing in forming the *Organs* and all Parts accordingly; and if not altogether so exactly as in a Man, yet much more than in any other *Brute* besides: But notwithstanding this Animal has so many Advantages above the rest of the *Ape* kind, I think it but a sort of *Ape* and a mere *Brute*.

The Third Figure represents the Skeleton of the Male *Pygmy*. The Animal before Dissection measured Twenty-six Inches; but in the Skeleton, only Four and Twenty Inches: But because Dr. *Tyson* observed most of the *Apophyses* of the Bones to be *Cartilaginous* in the *Pygmy*, he concluded, that 'twas but young, and that probably it might have grown taller, but to what height was uncertain: Yet he could by no means be induced to believe that it would ever arrive to the Stature of a Man, as some of this Species of Animals have been observed to do; for then he could not expect to have seen here the Bones themselves so solid, or the *Cranium* to be so entirely ossified, or the *Sutures* to be so closed and indented, and the *Back-bone* and *Ribs* so fully hardened, as all the Bones of the *Artus* or Limbs were likewise, except their *Apophyses*, and in the  
*Carpus*



*Carpus* and *Tarsus*. Now all these Parts that had these *Cartaliginous Apophyses*, had already acquired so great a Length, in Proportion to the rest of the Body, that 'tis not to be imagined, that they would have exceeded it, or at least not much. This inclin'd him to think, since he found most Parts of the Body perfected here, that it would not in Time much exceed the Height it had already acquired; and this Height agrees with that of the Female *Chimpanzee*; but of this hereafter.

*Le Compte* observed an *Ape* in the Straits of *Molucca* four Foot high, but this may not be our sort, as to those of *Borneo*, Dr. *Tyson* was informed by a Sea Captain, who used those Parts, that the King there formerly had one as tall as a Man, that would frequently come down to the Town, and a great many Stories are told of him. The same Captain had two given him, both young, and about the Height of our *Pygmy*; but these were not hairy, but naked as a Man; and one of them that he carried to *Batavia*, was lookt upon as so great a Curiosity, that all the Time he staid there, his Ship was constantly visited by such as come to see this strange Creature. But 'tis matter of Fact, not Reasoning, that will best determine this doubt, and a faithful Observation that must inform us to what Tallness this sort of Animal in *Angola*, and the Countries thereabout, does usually grow; for in different Countries they may be different in this Respect, tho' the same Species, as is seen even in Mankind.

'Tis not therefore that Dr. *Tyson* was fond of the word *Pygmy*, as he himself declares, that he call'd our Animal so, or that he would undertake to justify this Creature to be exactly the *Pygmy* of the Ancients: Of this *Quadru-Manus*, or *Four-handed* sort of Animals, there are divers Species, and some may be taller, and others shorter; but all of them being  
but

but Brutes, he was unwilling to call it a Man, tho' with an Epithet: 'Twas necessary to give it a Name, because not tallying exactly with the Descriptions of those that are given us, he did not know but that it might be different; and its present Height Corresponding so well with that of the *Pygmies* of the Ancients (and we may allow something for Growth too) induced him to this Demonination: For as *A. Gellius* tells us, the *Pygmies* were two Foot and a Quarter high, or Twenty-seven Inches of our Measure. However it be, if this *Ape* be not the *Pygmy* of the Ancients, it was his firm Belief, that the *Pygmies* of the Ancients were only a sort of *Apes*, notwithstanding all the Romances that have been made about them. And if so, and our *Ape* be found not much to exceed the Measure given, we may think the Conjecture in giving it this Name, not amiss.

I shall only further add what *Le Compte*, a Modern Writer tells us of the *Salvage-Man*, and so finish the History of the Male *Pygmy*, or *Chimpanzee*. *Lewis le Compte* therefore, in his Memoirs and Observations upon *China*, tells us, That what is to be seen in the *Isle of Borneo*, is yet more remarkable, and surpasseth all that ever the History of Animals hath hitherto related to be the most admirable; the People of the Country assure us, as a Thing notoriously known to be true: That they find in the Woods a sort of Beast, called the *Salvage-Man*; whose Shape, Stature, Countenance, Arms, Legs, and other Members of the Body are so like ours, that, excepting the Voice only, one should have much a due not to reckon them equally Men with certain Barbarians in *Africa*, who do not much differ from Beasts.

This *wild*, or *Salvage-Man*, of whom I speak, is endued with extraordinary Strength, and notwithstanding he walks but upon two Legs; yet is he so swift

swift of Foot, that they have much adue to out-run him. People of Quality Courſe him, as we do Stags here, and this ſort of Hunting is the King's uſual Divertiſement. His Skin is all hairy, his Eyes ſunk in his Head, a ſtern Countenance, tanned Face, but all his Lineaments are pretty proportionable, although harſh, and thickned by the Sun. I learned, ſays our Author, all theſe Particulars from one of our *French* Merchants, who hath remained ſome Time upon the Iſland. Nevertheleſs, I do not believe a Man ought to give much Credit to ſuch ſort of Relations, neither muſt we altogether rejeſt them as fabulous, but wait till the unanimous Teſtimonies of ſeveral Travellers may more particularly acquaint us with the Truth of it.

Paſſing upon a Time from *China* to the Coaſt of *Coramandel*, I did myſelf ſee in the Straits of *Molucca* a kind of *Ape*, that might make pretty credible that which I juſt now related concerning the *Salvage-Man*.

It Marches naturally upon its two hind Feet, which it bends a little, like a Dog's, that hath been taught to Dance; it makes uſe of its two Arms as we do; its Viſage is in a manner as well favoured as theirs of the Cape of *Good Hope*; but the Body is all covered with a white, black, or grey Wool: As to the reſt, it cries exactly like a Child; the whole outward Action is ſo Humane, and the Paſſions ſo lively and ſignificant, that Dumb Men can ſcarce expreſs better their Conceptions and Appetites. They do eſpecially appear to be of a very kind Nature; and to ſhew their Affections to Perſons they know and love, they embrace them, and kiſs them with tranſports that are ſurpriſing. They have alſo a certain Motion that we meet not with in any Beaſt, very proper to Children, that is, to make a Noiſe with



with their Feet, for Joy or Spight, when one gives or refuses them what they passionately long for.

Although they be very big, for that I saw was four Foot high, their Nimbleness and Slight is incredible ; it is Pleasure beyond expression, to see them run up the Tackling of a Ship, where they sometimes play as if they had a Knack of vaulting peculiar to themselves, or as if they had been paid, like our Rope-dancers, to divert the Company. Sometimes suspended by one Arm, they poise themselves, and then turn, all on the Sudden, round about a Rope, with as much quickness as a Wheel, or a Sling that is once put in Motion ; sometimes holding the Rope successively with their long Fingers, and letting their whole Body fall into the Air, they run full Speed from one End to the other, and come back again with the same Swift-ness. There is no Posture but they imitate, nor Motion but they perform ; bending themselves like a Bow, rowling like a Bowl, hanging by the Hands, Feet, and Teeth, according to the different Fancies which their whimsical Imagination supplies them with, which they act in the most diverting manner imaginable ; but their Agility to fling themselves from one Rope to another, at thirty and fifty Foot distance, is yet more surprising.

In this Character there are several things which might be taken Notice of ; particularly what is mentioned of its Cry, like a Child's ; and its expressing the Passions of Joy and Grief, by making a Noise with its Feet, which is agreeable enough to the Account that is given of our Male *Pygmy* ; for Dr. *Tyson* says, he himself heard it Cry like a Child, and it hath been often seen to kick with its Feet, as Children do, when either it was pleased or angred. I am told that the *Chimpanzee* wou'd often Cry like a Child ; and when anger'd

or pleased, exprefs much the fame Paſſions with the Animal above-mentioned.

That the whole *Ape* kind is extreemly given to Venerſy, appears by infinite Stories related of them. And not only ſo, but differing herein from other Brutes; they covet not only their own Species, but to an Exceſs, crave after thoſe of a different, and are moſt amorous of beautiful Women. *Gabriell Clauderus* tells us of an *Ape*, which grew ſo amorous of one of the Maids of Honour, who was a celebrated Beauty, that no Chains, Confinement, nor Beating, cou'd keep him within Bounds; ſo that the Lady was forced to Petition to have him baniſh'd from Court. But that Story of *Caſtancenda* in his *Annals of Portugal*, if true, is very remarkable; of a Woman who had two Children by an *Ape*. It would be too tedious to relate all the Stories that are told us of them; ſuch Perſons therefore as deſire a more particular Account of theſe Animals, I refer to Dr. *Tyſon's Anatomy of the Pygmie*.

To conclude. 'Tis a true Remark, which we cannot make without Admiration, that from Minerals to Plants, from Plants to Animals, and from Animals to Men, the Tranſition is ſo gradual, that there appears a very great Similitude, as well between the meaneſt Plant and ſome Minerals, as between the loweſt Rank of Men and the higheſt kind of Animals. The Animal, of which we have been treating, coming neareſt to Mankind, ſeems to be the *Nexus*, or Knot of the Animal and rational World.

This *Climax* or *Gradation*, cannot but be taken Notice of by any that are curious in obſerving the Wonders of the Creation; and the more he obſerves it, the more venerable Ideas 'twill give him of the great Creator; and it would be the Perfection

on of Natural History, (could it be attained,) to enumerate and remark all the different Species and their gradual Perfections from one to another. Thus in the *Ape* and *Monkey-kind*, as Dr. *Tyson* observes, *Aristotle's Cebus*, which is an *Ape* having a Tail, is a Degree above his *Cynocephalus*, a Creature having the same Shape of a *Monkey*, but bigger and stronger ; and its Face more like a *Dog's*, and of a fiercer Nature, and his *Pithecius* or *Ape* above his *Cebus* ; and our *Pygmy* or *Chimpanzee* a Degree above any of them we yet know, and more resembling a *Man* : But, at the same time, I take him to be wholly a *Brute*, tho' in the Formation of the Body, and in the Sensitive or Brutal Soul, it may be, more resembling a *Man* than any other Animal ; so that in this Chain of the Creation, I would place our *Pygmy* as an intermediate Link between an *Ape* and a *Man*. I shall add what an ingenious Writer has deliver'd upon this Subject.

When we contemplate the admirable Fertility of Nature, that has produc'd such an immense stock of Beings, endow'd with Life and Sense in this narrow Planet, were every Plant and Animal breeds numberless Insects, every Drop of Water and Piece of Earth is a Nest of minute living Creatures, and a little Pepper-Corn is crouded, like a populous City, with Inhabitants, we cannot but conclude that the Regions above are equally peopled ; unless we can conceive that the bright and spacious Globes of Heaven were only made for the Service of this little Obscure spot, or that the Author was not able, or was unwilling to exert more Power and Goodness in creating proper Animals to fill the noblest as well as the meanest Parts of the Creation.

As the innumerable Multitudes of living Creatures that replenish the wide Frame of Nature, demon-



strate the Power of the Divine Author, so his Wisdom and free Principle of Activity shine in the endless Variety of Brute and Intelligent Beings, that in a regular and beautiful Subordination gradually descend from the highest Angel to the basest Insect. He might, had he pleased, have form'd all his Creatures of the most perfect Order. It is as easy for the supreme Cause to make a Sun as a Glow-worm ; at the Beck of his Will a Seraph is as ready to break away from Darkneſs and Nothing, and spring up into Exiſtence, as the meanest Fly. But he acted like a Prudent arbitrary Cause, and consulted Order, Harmony and Beauty, by making so many Creatures of such various Ranks and Degrees of Excellence.

Nothing is more surprising and delightful, than to observe the Scale or gradual ascent from Minerals to Plants, from Plants to Animals, and from Animals to human Nature. 'Tis easy to distinguish these Kind, till you come to the highest of one, and the lowest of that next above it ; and then the Difference is so nice, that the Limits and Boundaries of their Species seem left unsettled by Nature, to perplex the Curious, and humble the proud Philosopher.

As Man, who approaches nearest to the lowest Class of Cœlestial Spirits (for we may justly suppose a Subordination in that excellent Order) being half Body and half Spirit, becomes the *Æquator*, that divides in the Middle the whole Creation, and distinguishes the Corporeal from the invifible intellectual World ; so the *Ape* or *Monkey*, that bears the greatest Similitude to Man, is the next Order of Animals below him. Nor is the Disagreement between the basest Individuals of our Species and the *Ape* or *Monkey* so great, but that were the latter endow'd with the Faculty of Speech, they might perhaps

perhaps as justly claim the Rank and Dignity of the human Race, as the *Salvage Hotentot*, or stupid Native of *Nova Zembla*.

I shall observe one Thing here, which perhaps has not been taken Notice of; that is, the Variety of many Species included in one, which at once seem distinct and the same. If the Idea of a *Lion* or a *Bear* are compar'd, they are immediately pronounced to be of a different Species, there being no intermediate Degrees of like Animals to suspend the Mind's Determination. But if we compare a *Lion* with a *Cat*, and observe the Similitude between them in their external Figure and inward Structure of Parts, which in both is the same, together with their Instincts and Actions, 'tis hard to tell if their Difference is Essential. How does the Author, upon one Simple ground of the *Cat-Nature*, vary and run curious Divisions thro' the *Domestick*, the *Civet*, and *Mountain Cat*, to the *Leopard*, the *Panther*, and the *Tyger*, 'till we come to the King of Beasts. Nor is the *Climax* or *Gradation* less surprising, while our Contemplation rises from the *Hedge-hog* or *Guinea-pig*, thro' several sorts of Swine, to the *Chæmois*, whose Snout is extended to a Proboscis of such length, that the Animal takes up his Meat, and feeds himself with it, and from thence to the *Elephant*, the Prince of the Swine Race.

But this seeming Indistinction and Confusion of Species is no where more remarkable than in the *Ape*; wonderful is the Variety of these Creatures which are so like to one another, and yet so different, 'tis hard to determine whether their Species are distinct or not.

The most perfect of this Order of Beings, the *Orang Outang*, as he is called by the Natives of *Angola*, that is, the Wild-man, or Man of the Woods,

has the Honour of bearing the nearest Resemblance to Human Nature. Tho' all that Species have some Agreement with us in our Features, many Instances being found of Men of Monkey Faces ; yet this has the greatest likeness, not only in his Countenance, but in the Structure of his Body, his Ability to walk upright as well as on all four ; his Organs of Speech, his ready Apprehension, and his gentle and tender Passions, which are not found in any of the Ape-kind, and in various other Respects.

This Contemplation has led me on to reflect how a particular Race of Gods, and another of Men, have deriv'd their imaginary Existence from the Wild Animals last mention'd.

The Priests, Poets, and fabulous Historians among the ancient Pagans, conspiring to Practice upon the Ignorance, Credulity, and superstitious Fears of the People, impos'd upon them numerous Gods, Creatures of their own Fancy, and having first plentifully fill'd the Skies with a Choice Collection of imagin'd Deities, they provided Country Gods of a low and ordinary Rank for the Forests, Fields, and Mountains, which they borrow'd from the *Ape* or *Monkey* Nation : There is the highest Probability that the *Fauni*, and the *Dryades*, the *Satyr* and the *Sphinx*, *Sylvanus*, *Silenus*, and *Pan* himself, and all the rest of their sacred Elfs, and Woodland Divinities, as well as the Nymphs, the Fairy-like Goddesses of the Lakes and Rivers, who are of no higher Station and Authority than our King *Oberon* and Queen *Mab*, were nothing else than some of these Man-like Inhabitants of the Wood, consecrated by designing Men, and complimented with religious Worship.

And as this inferior Order of Deities were probably only *Apes* and *Monkeys*, dignify'd with Di-  
vine



vine Titles, fo a Race of Men, call'd *Pygmies*, in whom the Frame of Human Bodies is abridg'd, and exprefs'd in Miniature, feem to owe their imaginary Being to the fame Original: *Homer* having describ'd the Shouts and Clamours of the *Trojan* Army falling on the *Greeks*, from the Noife made by the *Cranes* ready to engage their Enemies, in an elegant Figure calls their Foes *ανδράσι πρυμαιοσι*, that is *Pygmean Men*.

The first *Greek* Historians, who often broke thro' the Bounds of Modesty, Decency, and Credibility, to propagate a Fabulous Story, which they embellish'd with all the Ornaments that a Wanton and fertile Fancy could suggest, took and improv'd this Hint of the Poet, and rais'd from it a diminutive Nation, where each Individual was a little Epitome or Abreviation of Man; which, as said before, they call'd *Pygmies*: They represented them as Persons of Stomachful Dispositions and Martial Inclinations, tho' but a Cubit and a half or two Cubits in Stature; and to gratify their military Genius, they engag'd them in endless Quarrels and bloody Wars with their implacable Enemies the *Cranes*: I do not find there were any Infantry in their Armies, which were wholly compos'd of these little Troopers: When the fierce Generals lead them forth to Battle, some Authors mount them on Partridges, which sure must have been as excessive in Bigness, as the Riders were defective; but other Historians have, in my Opinion, with more Judgment set 'em on the Backs of Rams and Goats: These Authors no doubt were mightily pleased to give the Relation of their Campaigns and Heroick Atchievements, and it would be diverting enough to see an Engagement between this dwarfish Race of Men, and the long neck'd Squadrons of the Enemy. Upon such a Description the Reader could not but be delighted,

delighted, to Figure in his Imagination, how here a wing'd Battalion of *Cranes* were put into Disorder, and there a *Pygmean* Squadron with great Slaughter routed and put to Flight; sometimes to see a wounded *Crane* fall dead at the Feet of the little Conqueror, and sometimes a *Pygmy* Officer caught up like a Chicken by a Kite, and carry'd thro' the Air wrything and struggling in the Pounces of his Enemy; but to this Day, the Country where this small body'd Nation inhabits, has not been found out by any Travellers. No *Columbus* ever yet discovered this World of Human Animals of such a contracted size; 'tis true, as there have been Giants, or Men exceeding the ordinary Bulk and Stature, so there have in all Ages been Dwarfs of an incredible Smallness, that look'd like moving Puppets, tho' they were really a concise Abstract of our Species: But as there never was known in any Age a whole Nation of Giants, so there was never discover'd a Country wholly inhabited by Dwarfs, these not being the ordinary Productions, but either the sport of Nature, or Deviations from her customary Course.

It must be allow'd there was a real Foundation, that gave Birth to this ludicrous Fable: The *Cranes* coming in numerous Flights, as *Aristotle* affirms, from the Regions of *Scythia* every Winter to the Lakes in *Egypt*, near the *Nile*, the *Apes* and *Monkies*, not out of thirst of Glory, or to enlarge their Dominions, but from a Natural warrantable Instinct to satisfy their Hunger, made Incursions on them to rob their Nests of their Eggs and devour their Young; the *Cranes* on the other Hand, as Nature furnishes all Creatures with Courage, even those who exert none upon any other Provocation, to defend their tender Offspring, made a vigorous Resistance, and many a sharp Action might ensue upon  
such

such Occasions ; and *Homer*, as I said before, alluding to these Fights of the *Cranes* and *Monkies*, and expressing the Noise of an Army eager to engage, by the Cries of these Birds when they attack'd their Foes, which by an agreeable and beautiful Figure he called *Pygmæan* Men, gave an Occasion to the Prolifick wit of *Greece* to produce this Fabulous Nation : This therefore is no Fiction of *Homer*, as some believe, his *Pygmies* were *Apes* like Men, and probably of the most perfect Order above describ'd, but were improv'd to real Men by Roman-tick Writers. If this Account be allow'd, all the Disputes of the learned about this diminutive Race are reconcil'd.

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An



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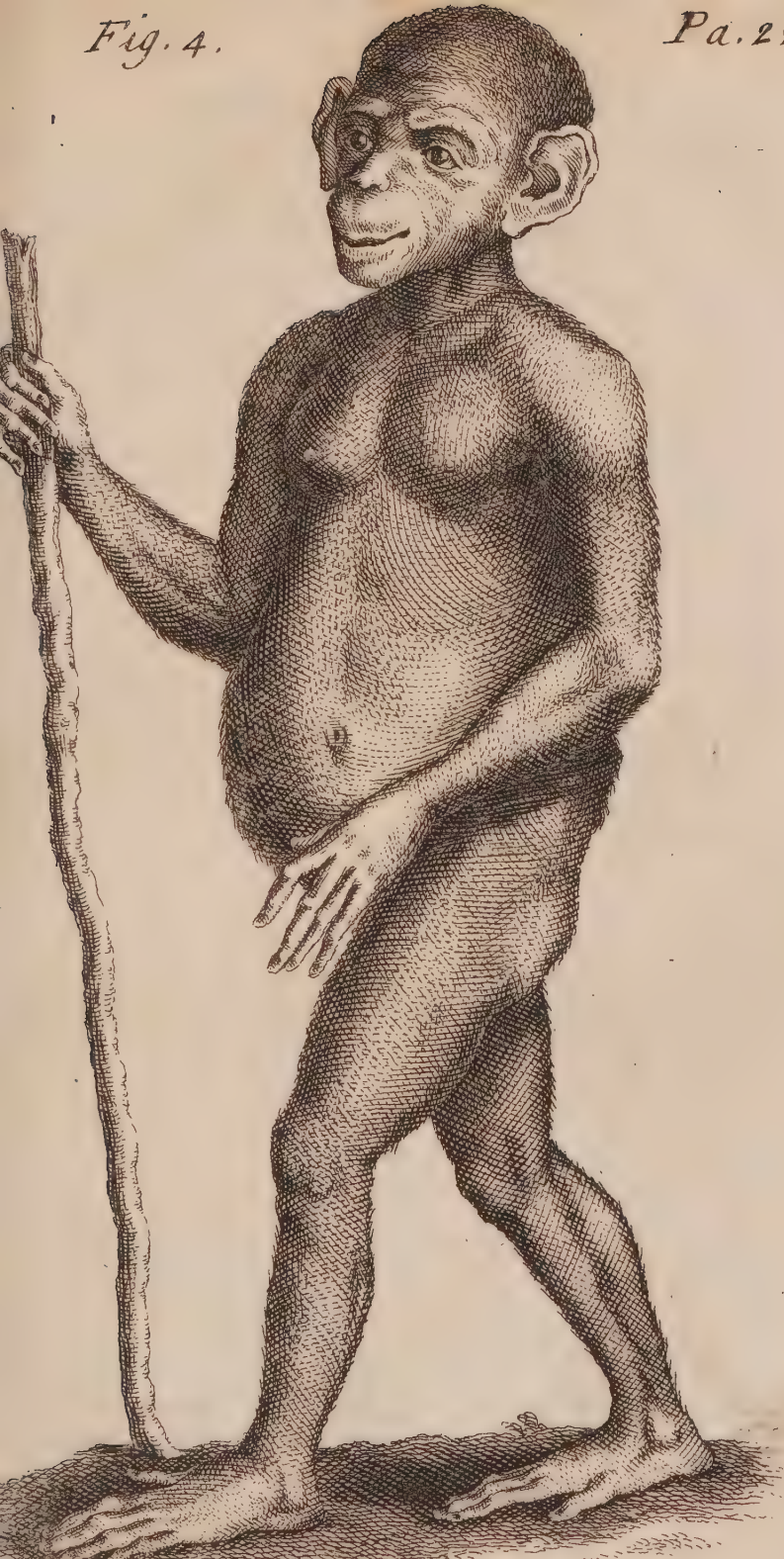


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A N  
A C C O U N T  
O F T H E  
Female CHIMPANZEE.

**T**HIS curious Animal was brought by Captain *Henry Flower*, in the Ship *Speaker*, from *Angola* on the Coast of *Guinea*, in *August* 1738. It was two Foot four Inches high, walk'd erect, drank 'Tea, eat her Food and slept in a Humane Way, was suppos'd to be about eighteen Months old when first brought over: She had a Capacity of Understanding, and great affability beyond any other kind of Brute Animal; had muscular Arms and Legs, of great Strength; 'tis said, that the Males, when at full growth, will force Women, and dare attack an armed Man, as the Mother of this Creature frequently did, who was upwards of five Foot high, and was shot by a Negro, before he cou'd take this from her.

The *Chimpanzee* was of a dark Colour, and pretty hairy on the Back and hinder Parts, the Belly and all the four Parts were much thinner of Hair, the Skin every where appearing, and the Hair more like the Humane, than the Furr of Beasts ( the same Dr. *Tyson* observes of the Male *Pygmy* ) on the Head the Hair was an Inch or more long, the Ears were quite bare, and in Shape very much like those of



*The Female Pygmy, or Chimpanzee.*





a Man, the Face was the same and pretty Fair, except upon the Chin, where appeared a few stragling Hairs like what is sometimes seen upon the Chin of ancient Women; the Nose was very small and flat, like that of *Apes*; the Chops longish, more resembling the Baboon's than the Humane; the Mouth about two Inches and a half wide; its Teeth in shape were like the Humane, but imperfect, appearing neither very white nor sound; which perhaps may be owing to Diet, Distemper, or other Accident. The Breasts of this Female Creature were small, and very little hairy: The Smallness, probably is an Argument of its Youth, because the old ones of this kind are generally drawn by ancient Writers, with pendulous large Breasts. It had small Calves to its Legs; the Feet were entirely bare on the Inside, as were likewise the Hands, both on the Inside and on the Outside to the Knuckles.

It was extremely loving and fond of the Persons it was used to, particularly of a Boy about twelve or thirteen Years of Age, who was aboard of the same Ship in which it was brought over; she had contracted so strong an Affection for him, that she cou'd not bare he shou'd go out of her Sight without expressing the utmost uneasiness till he return'd. Its Food was Potatoes, Bread, Milk, Apples, Nutts, and raw Onions, which last it greedily devoured. It wou'd sit at Table in Company, with its Legs hanging down, like the Humane, and take what they gave it; they offered it no kind of Flesh, excepting sometimes a Piece of Chicken or Rabbit, when dress'd, which the Creature wou'd eat. *I believe all kind of Flesh, whether dress'd or raw, is unnatural to these Animals, and to all the Ape and Monkney-kind in general, Nuts, Fruit, &c. being both more agreeable and wholesome for them.*

The

The *Chimpanzee* was very pretty Company at the Tea-table, behav'd with Modesty and good Manners, and gave great Satisfaction to the Ladies who were pleas'd to honour her with their Visits, by several rational and seemingly diverting little Actions; it would fetch its little Chair, and sit in it naturally, like a Humane Creature, whilst it drank Tea: It would take the Dish in its Hand, and if the Liquor was too hot, wou'd pour the Tea into the Saucer to cool it, and so in various little Things, mimick Man to a surprizing degree.

It died *February* 23, 1738-9. The following Account was publish'd in the Daily Advertiser on the next *Monday*; on *Saturday* last was opened before Sr *Hans Sloane* Bart. President of the Royal-Society, and Mr. *Ranby*, Surgeon to his Majesty's Household; the Body of that great Curiosity the Female *Chimpanzee*, which died the Day before: The Cause of its Death was by these Gentlemen assign'd to the extravagant Quantity of the fluid Part of its Sustenance, and that it was attended with a confirm'd Jaundice: Its Intestines were like the Humane.

Just before I had an Opportunity of seeing this wonderful Creature, I had read Dr. *Tyson's* Anatomy of the *Ourang Outang*, or Male *Pygmy*, which that Gentleman has so exactly and truly describ'd, that I am fully satisfisd the *Chimpanzee* is of the same Species, all the external Parts and Properties, assign'd by him to his Animal, answering in this, only this was not quite so hairy as his seems to have been; yet in that Particular, there is no greater difference than there is usually in the Male and Female of the Humane kind, and very probably, had it lived longer, it wou'd have been more hairy; for I was assur'd by the Person who attended it,  
that

that the Hair had grown very much within two Months before it died.

But if what the Negro related, who shot the Mother of this *Chimpanzee*, be true, *viz.* that she was upwards of five Foot high, it will quite overthrow the Ingenious conjecture of Dr. *Tyson*, who, from the Stature of the Male of this kind ( which he Dissected ) corresponding very nearly to that of the *Pygmy* of the Ancients, supposed this Species of *Ape* to be the very Creature that they described under that Name; and has, with much Labour, Learning, and good Reasoning upon the Subject, made it appear so evident, that I think every one, who reads him impartially, will acquiesce with him in that Opinion.

For my own Part, I am inclin'd to believe that these Animals, when at full growth, do not very much exceed the Stature of the Male *Pygmy* of Dr. *Tyson*'s, both for the Reasons he assigns, and because there have been two or three brought over since at different times of much the same Stature.

2. Whether the Negro-man, who reports this, understood our Measure, or was faithful in his Account? Or whether to get a better Price for the Young, he did not paint the old One to be such a huge fierce Beast? Or to magnifie his own Courage and Skill, in killing the one and taking the other?

That Part which they relate of this Creature's attacking an Armed-man, as they say it frequently did this Negro with a large Club in its Hand, I utterly reject as not worthy of Credit; and if this appears to be an Imposition, then may we suspect the Truth of that Relation of its Stature likewise. I do not deny but that the Creature can take a Stick or Club in its Hand, and may possibly be taught to make use of it, but that the wild ones in the Woods defend themselves with such Weapons,



I can give no belief to ; Nature having supplied these Brutes, like all other unarm'd Animals, with better means of escaping from their Enemies than by fighting. She has made them exceedingly swift, so that their Agility is surprising ; they are so nimble in running up a Tree, and leaping from Bough to Bough, that it wou'd baffle all the Art of Man to catch one of these Creatures without a Gun or Snare ; nay, one of these wou'd climb a Tree with a Cub in its Arms, too swift for any Man to take it, therefore is it not strange to believe, when Nature has provided an Animal with such extraordinary Faculties, that instead of using them, she shou'd rather Fight, tho' naked and unarm'd with her Enemies. To me this seems to favour much of Romance, something like what Ancient Fables tell us of the Battle between the *Pygmies* and *Cranes*.

However, it must indeed be own'd that in defence of its Young, it might appear much more fierce than at other Times, and like the Female Parent of most Animals, venture at such a Time more boldly against its Enemies, but never so far, I think, as to attack them with any other Weapon than what Nature has furnish'd them with, which in this Animal is its Teeth only, made in the Form of the Human.

I have both read and heard Travellers relate, that when they have pass'd thro' the Woods, where the *Apes* frequent, these unlucky Creatures have kept them Company for a great while together, by leaping from Bough to Bough, and from Tree to Tree ; sometimes they wou'd nimbly descend one Tree, and, crossing the Pathway just before them, as quickly ascend another ; at other times they wou'd drop on a Sudden from a higher to a lower Branch, just, as it were, upon the Passengers Heads, and

and appear so daring and bold, as if they meant to attack them, all the time screaming, and making such a frightful hideous Noise, as was enough to terrify a Company of Travellers, much more a single one. But they were always observ'd to turn their Backs and run away, whenever a Man attack'd them.

Mr. *Atkins*, in his Voyage to *Guinea*, tells us, that the same Captain *Flower*, who brought over the Female *Chimpanzee*, brought Home a Male of the same kind from *Angola* in 1733, disembowelled and preserved in Rum : It had lived a few Months with him, had a smooth Visage, little Hair, Genitals like the Human ; it would frequently walk on its hinder Legs voluntarily ; would sit down in a Chair to sip or drink in the same manner they did ; always slept sitting, with his Hands upon his Shoulders ; not mischievous, like *Monkies* or *Apes*, and had his Hands, Feet, and Nails, more resembling ours. I saw this *Ourang Outang* ; 'twas shown with the Female *Chimpanzee* : 'Tis the same with the *Pygmy* of Dr. *Tyson's* ; his Description will serve as well for this as his own.

Mr. *Atkins* farther says, that on the Coast from *Cabo Corso* to *Wydah*, they pass by a Considerable Mount call'd the Devil's-hill, being the Haunt of rapacious Wild-beasts ; but the most danger to Travellers, is from a prodigious Number of *Apes* ( some five Foot long ) and *Monkies*, that inhabit it, who will attack single Passengers, and drive them for Refuge into the Water, of which these Creatures are very fearful. Our Carpenter, says he, got one on board from these Parts, as near the Likeness of a Child, without being one, as perhaps was ever seen ; a flat smooth Visage, little Hair, no Tail, wou'd taste nothing but Milk or Gruel sweetened, and that with Difficulty ; moaning continually in

28      *A* DESCRIPTION of, &c.

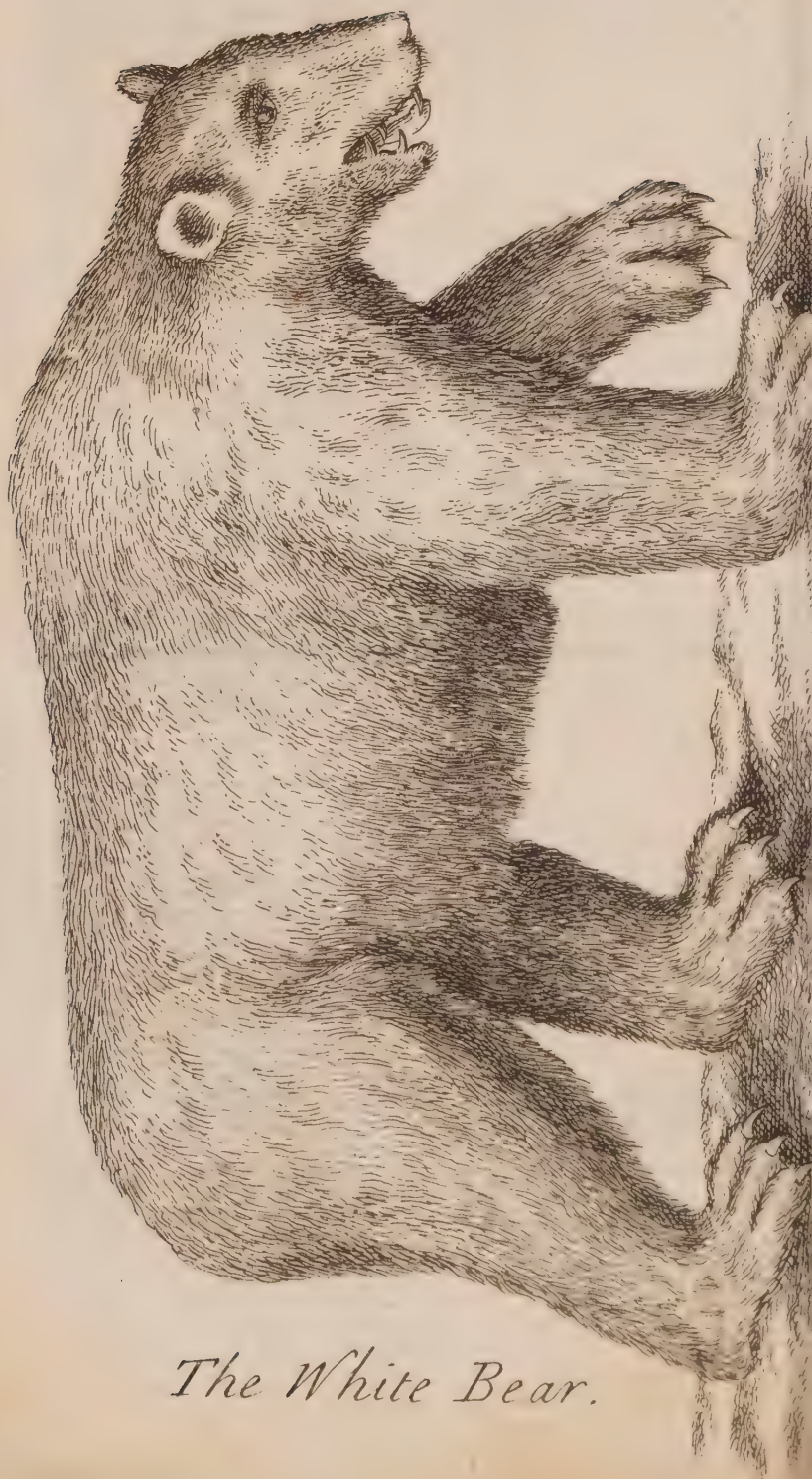
a Tone like an Infant ; in short the Moans and Aspect of it were so Shocking and Melancholy, that, after having been kept two or three Months, it was stunn'd, and thrown over-board.

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T H E







*The White Bear.*

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T H E  
D E S C R I P T I O N  
O F T H E  
W H I T E B E A R.

**T**H E *Bears* of this Colour are much bigger than the common sort, or indeed those of any other Colour ; they differ likewise from all other Kinds in the Form of their Heads and some other external Parts, perhaps they are of a distinct Species ; and that their whiteness is not altogether owing, as some imagine, to the Cold Snowy Countries where they are found.

One of these, which is now shewn in *London*, is about four Foot and a half high when it stands upon all four, and about nine Foot long : I am told, that in the Countries where they are produced, they are frequently found much larger. It would raise itself and extend its Feet thirteen Foot, and take hold of the upper Part of a large Den, that sometimes it was kept in, and swing like a Parrot in its Cage.

Its Head has a formidable Aspect, being in Shape more like the Head of a Lion, as the Figure expresses, than that of the common *Bear*, and tho' small, for the Bigness of the Creature, yet is it at least fourtimes as big as that of our largest Mastiff : Its Neck is prodigious thick and strong ;



its Eyes very small for the Bigness of the Creature, and sunk far in the Head, which is a Provident Provision of Nature against external Injuries: Its Nose is black and thick, with wide Nostrils: The Mouth large and black, and exceedingly well armed with strong Teeth; the Tusks, two of which it has in each Jaw, are full two Inches long: Its Tongue was of a Purple Colour, as was likewise the roof of the Mouth, and some other Parts within the Jaws: Its Ears were very small.

The Hair of the whole Body was of a Silver white, and extraordinary long and thick; on the Belly, Thighs, and some other Parts it was at least four or five Inches long. When I saw it, *April* the 24th, 1739, it was shedding its Coat, which made him appear rougher than usual.

The Limbs of this Animal are monstrously big, the Thigh being a Yard or more in compass: The Soles of the Feet are flat, broad, and whole, without partition, extending ten Inches lengthways, and about seven or eight in breadth, the upper Part of the Foot appeared larger each Way; and strongly armed with five large Nails, each full two Inches long or upwards. He made use of any of his Paws in scratching himself, and some other Occasions, as we do our Hands.

It was taken, they say, at *Greenland* upon an Island of *Ice*, several Leagues from Shore, in Company with its Dam: It was then about the size of a large Dog, and judg'd to be about four or five Months old; it has been in *England* now about four Years. They fed it at first with raw Flesh, which made the Creature too ravenous; therefore they now feed it wholly with Bread soak'd in Milk, which Diet makes him less *Savage*, and yet very fat.

It seem'd very docile, and ready to obey the Command of its Keeper: It would take a little  
Puppy

Puppy up in its great Paws, lift it up to its Mouth, and rear an End with it without hurting the Creature, and shew some other Pranks which they had taught it. Its roaring was terrible, and might be heard at a great Distance. It is of the Male-kind.

*Labontan in his Voyage to North America*, tells us, that the white Bear is so fierce a Beast, as to come and attack a *Sloop* in the Sea, with seven or eight Men in it ; and that they'll swim six or seven Leagues without being tir'd. They live, he says, upon Fish and Shells, which they find upon the Sea-shore, from whence they seldom straggle far ( at least up the Country ) he says, he never saw but one of them, which had certainly tore him to Pieces had he not spied it at a Distance, and so had time to run back for shelter to Fort *Louis* at *Placentia*. He says that the reddish *Bears* are the most mischievous of any kind, for they fall fiercely upon the Huntsmen, whereas the black ones fly from them. The former sort are less and more nimble than the latter.

The common *Bear* is one of those Beasts which the Huntsmen kill with ease, when found. Those Creatures at the Beginning of the Winter make themselves Dens in the Earth, which they cover with the Branches of Trees to keep off the Snow till the next Spring, there they lye all the Winter, but what they subsist on I know not ; yet this is certain, that they come out fatter than they went in. When the *Savages* kill them, they cloath themselves with the Skins and eat the Flesh, which is said to be very good.

The *Elk* is harder to be taken, and must be run down in the Woods, which takes up two or three Days. It is pursu'd by the Track on the Snow, being naturally a slothful Creature, that will sit or lie in a Place as long as it has any  
Thing

## 32      *A DESCRIPTION of, &c.*

Thing to feed on, or till it is disturb'd by the Hunters ; but once rous'd it will run Night and Day till it drops down, and the *Savages* never cease to pursue till the Beast is spent, when they easily kill it, and it is one of the best sorts of Game, for the Flesh is extraordinary good, either fresh or dry'd, and will keep all the Year: The Tongue and the Snout of it are very delicate. This Creature, tho' very large, and having great Horns, makes no Defence against the Hunters. *See the Figure, and a farther Account of this Beast in the Description of three Hundred Animals.*

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The Cameleon.



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A

Curious A C C O U N T

O F T H E

C A M E L E O N

F R O M

*M. le Bruyn.*

**W**HILST I was at *Smyrna*, and had no Cares upon me for the urgent Necessities of Life, I took an Opportunity of buying some *Cameleons*, being willing to try by Experience how long they could be kept alive. I commonly kept four of them in a large Cage, and every now and then gave them Liberty to run about the Room. I likewise carried them very frequently into a Hall that lay behind the House, where the Wind that came off the Sea blow'd very pleasantly, and then I observed that they were brisker than ordinary, and that they took Pleasure in snuffing in the fresh Air, which they constantly suck'd in at their Throats, which they kept wide open.

'Tis



'Tis what Naturalists look upon as a Thing certain that these Animals live upon the Air, and is what Experience really confirms; for I never saw mine either eat or drink, only they swallow'd some Flies, as I shall take Notice by and by.

'Tis likewise as true, that they often change their Colour; and I have sometimes observ'd that this Change has been made three or four Times within the Space of half an Hour, without any Colour being about them, to which this Alteration might be attributed. When this happen'd, I immediately painted them either only in Water-colours, or else in Oyl. The Colours into which they were commonly chang'd, were a very fine green, mix'd with small Specks or Spots of yellow, and so curiously done, that better could not be drawn with a Pencil: Sometimes they had brown Spots, which were spread over the whole Body to the Tail: At other Times they assum'd a brown Colour like to that of Moles; I drew all those various changes from that *Cameleon* which shifted its Colour the most frequently, and the most curiously. Their usual and ordinary Colour is a Sort of a Mouse grey, and their Skin is very thin and almost transparent. Most generally they assume a Colour like to that of a Lizard; but as for what is commonly said, that they take upon them Colours of all the Things on which they are laid, I found by Experience, that the Naturalists are mistaken therein; for they never assume a red, nor several other Colours: However I must own, that one Day I perceiv'd such a Sort of Alteration as was very remarkable. It happen'd that returning somewhat late to my Lodgings, I miss'd one of my *Cameleons*, and that the finest of all, out of my Chamber. I was unwilling to go to Bed till I had found it, and therefore I and my Comrade

Comrade set upon the Hunt after him for above half an Hour, and at last met with him on a Night-gown of white Silk, which being very long, hung down to the Ground. The *Cameleon* was crept up to the very Top, and appear'd as white as the Silk itself, so that we had much ado to discern the one from the other. This was the most wondrous Change that ever I saw, I mean with respect to their assuming the Colours of such Things, on which they were laid.

I could never keep them alive above five Months, and most of them died within the Space of four Months.

I had the Curiosity to enquire wherein their Intestines consisted, which made me open one of them, and I found one and thirty Eggs within about the Bigness of those of small Birds; they were all fastened one to another in the Nature of a Chain, but I did not see any Entrails, or any Thing like it. It was in my finest *Cameleon* that I met with that Number of Eggs, in the others I hardly found above twenty.

The most noted Part about them is their Tongue, which is as long as their whole Body. With it they catch Flies, as the Naturalists have likewise taken Notice of, and their manner of doing it is as follows: The *Cameleon* sits without stirring, and when a Fly comes in its way, it darts out its Tongue all of a sudden, catches the Fly with the Tip of it, and so swallows it: The Throat being very large, and kept wide open, is well fitted for that purpose. 'Tis commonly supposed, that there is at the End of their Tongue a Viscous Humour to which the Fly sticks; but I am of Opinion that the *Cameleon* catches its prey with the Tip of its Tongue, with which it incloses the Fly, and so throws it down its Throat. They have another Way of  
catching

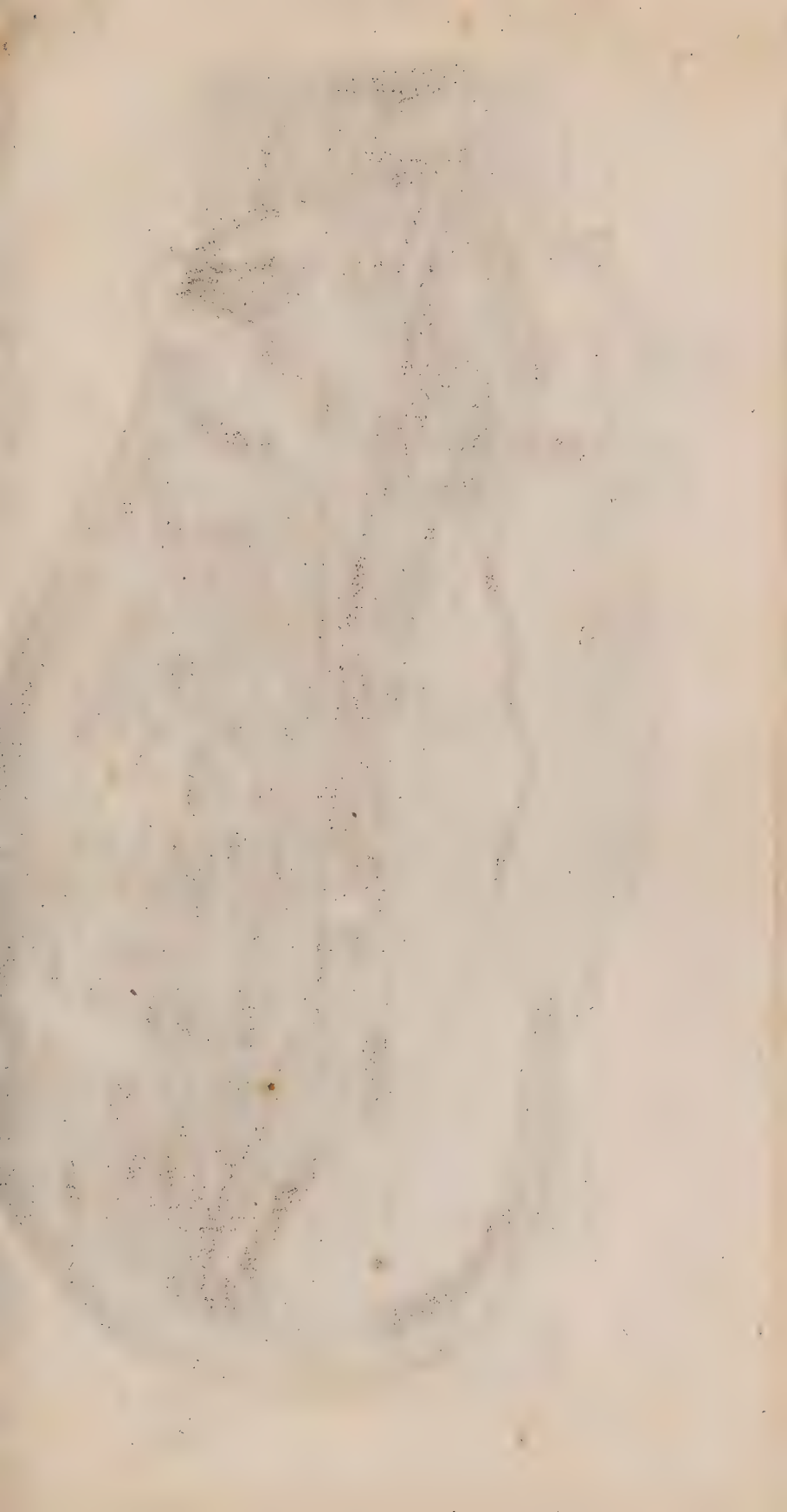
catching Flies, as I have been told by others, tho' I never experienced it myself; and 'tis to sit as if they were asleep, and to stretch out their Tongue along their Bodies to their very Tails; the Flies, who, as every one can tell love any thing that is moist, alight upon it; in the mean Time the Creature never stirs, but when he perceives that there's enow of them, it pulls in its Tongue so swiftly that hardly one of them escape. *Since the Cameleon discovers so much Stratagem in taking Flies, and Nature having furnished it with an Instrument proper for that Business, with which it may devour great Numbers, I can't see how some Naturalists can assert that it lives upon Air only.*

There are those who pretend, that the *Cameleon* alwas keeps its Mouth wide open, but I very seldom observed it, unless when I carried it out into a Place, where it cou'd suck in the Air with most Freedom; then it would open its Throat as wide as it could, and shew'd by various Motions, and continual Changes, the Pleasure which it took therein. The Eyes of this little Animal are round, as black as jett, and very small; and what is most remarkable is, that they can turn one of them one Way, and the other another, so that they can at the same Time look both upwards and downwards.

When the *Cameleon* would descend from any high Place to a lower, it marches very warily, setting forward first one of its Fore-feet, and then the other, and the same Care it takes of its hinder Feet, steering themselves as well as it can with its Tail; with which it wrapes itself that it may descend the more steddily, till it comes to the lower End, and if after all this it cannot reach the Ground, it will jump down upon it all of a sudden. It marches but very slowly, and its Bigness is such

as





*An Animal of the Weevil Kind, found at Smyrna.*





gerbo.







as is represented in Plate six, where you may see its Tongue, &c. all which I drew to the Life from one of my *Cameleons*.

The Figure, with a short Account of one of these Creatures is in the Description of Three hundred Animals, but this being a great deal better in both Respects, I thought proper to insert it, not doubting but that my Reader will be well pleased therewith.

Whilst I continued at *Smyrna* I had likewise a little Animal which catch'd *Mice* and eat them ; It was of a yellow Colour turning a little to grey, with black Spots, such as is represented in Plate 7, and about as big as a *Weefil* : I was the better pleased with this little Animal because of its being scarce. I kept it along Time alive ; but whereas all Creatures are subject to Death, this also died at last.

During my stay at *Venice*, I was presented with a small Animal call'd *Gerbo*, which was brought for a Rarity from *Barbary*. I found it of a very extraordinary Figure : Its Shape, Head, Ears, and Colour, was much like that of a Hare. His two hindermost Feet, on which only he went, were extraordinary long ; and on the contrary, those before very short, having at the Ends something like a little Hand, wherewith this Animal fed himself, after the manner of *Squirrels* and *Monkeys* ; its Tail was very long, and at the End spotted with white and black : See the Figure in Plate 8, After I had kept it some Time the Creature died ; *Le Bruyn*.

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A

# DESCRIPTION

## OF THE

# BEAVER;

With the Manner of catching them at *Hudson's Bay* and other Parts of *North-America*.

**T**HE *Beaver* hunting is very Beneficial to the *Savages*, tho' the Price of them is of late much lower'd ; they are generally shot just coming out of the Water, or else they are taken in Gins set for them, and they begin to appear when the Sun is about setting : They must be approach'd very gently, for they are so quick of hearing, that the least Noise makes them plunge into the Water, and when they have once div'd, it is long before they come up again, and very far from the Place where they duck'd ; before their going down they beat the Water with their Tails, making such a Noise, that it is heard at a great Distance, and that is to give Notice to their Companions to make their escape. Their Tails are of a particular Shape,  
being



being like a *Soal*; there is no Hair on them, and the Skin looks Scaly : The Flesh of them is very good, tho' it is all a lump of hard Fat and Sinews, which gives that Strength to make so great a Noise on the Water. As sharp as their hearing is, their scent is no less quick, for they will smell out a Canoe by the way it makes on the Water, and they immediately dive, or fly to hide themselves, when it is in vain to pursue them, for they are not to be found again. Were their Eyes better they would be much safer, but they can only see sideways, their Eyes being very small, and they will sometimes come straight forwards to meet their Death. When kill'd on the Water, they must be taken up immediately, for as they dive whilst living, so they sink when dead. The surest Way is to take them in Gins, and besides, the Baite, which is no other than a bit of the Bark of an *Aspen* Tree, the Thing they most delight in, is cheaper than Powder and Shot.

Another Contrivance to take them is thus : When the Waters in which the *Beavers* build their Huts are frozen over, and they think themselves safe, the Hunters go over the Ice, and cut them down with Axes, then the *Beavers* being forc'd to leave them, fly to the Edges of the Lake to hide themselves between the Ice and the Land, and there lie on their Bellies ; but in vain, for the Hunters Dogs soon find them out by the Scent, and point to their Masters, who break the Ice with their Axes, and what is amazing, all that Noise then does not make them remove, so that when the Hole is made they draw them out by the Tails, and knock them on the Head with their Axes.

It is wonderful that these Beavers are as dexterous at building their Hutts as Men are for their Houses. They generally do it when coupled and about breed-

ing, and place them in the Water, yet so that not one Drop comes into them. The Hut is made like an Oven, the Arch and Mouth of it above the Water, and it is only of Clay and green Wood ; but it is amazing to see with what Art those Materials are put together : The Wood is laid underneath for a Foundation, and the Clay neatly plac'd upon it to make the Dwelling.

Whether the Trees they make use of are great or small, they have no other Tools to cut them down with but their Fore-teeth, which are like a *Rabbit's*, gnawing round the Bottom by degrees, and contriving it so exactly, that they infallibly fall on that side, which is most convenient for them afterwards to drag them to the Place design'd to build their Huts. With those Teeth they gnaw off the Branches, and draw the Trees into the Lakes to fix them in the Water, and just even with the Surface of it, all in a Circle, and exactly equal to one another ; to carry those Trees they bear them on their Backs, and what is amazing, some of them are as thick as a Man's Middle, and three or four times his Length, which they do thus ; they take hold of one End of the Tree with their Teeth, turning their Heads towards their Backs, which bear it, so they lift and put their Bodies under to support them : This is not easy to demonstrate, nor scarce to conceive, but it is matter of Fact.

They have another way for carrying of the Clay, which they hold between their two Fore-feet and walk upon the hinder. The first Layer is plac'd on the Tops of the Trees, fix'd like Stakes ; they beat it well with their Tails, and that is the Flower of the Hut, on an edge whereof they leave a Hole to go in and out at, the Water continually beating upon it, without getting in ; so they carry on the  
Work

Work till it finishes in a Dome or round Top equal to the extent of the Floor, and about three Foot high. Here each Couple take up their Habitation, without ever parting till Death, and some say, that when one dies, the Survivor never chooses another Mate.

They take especial Care of their Young, having not above two or three at once, and that about the Spring ; then they all live lovingly together till the old ones are for coupling again, and then they turn out the Young, who go and breed apart. When the Heat of the Summer causes the Water to fall below their Huts, they make Dikes to stop it from running off, that it may always keep up even with the Holes of the Huts, and that they may wet their Tails when they will without going out ; those Dikes are so order'd, that the Water is never too high nor too low for them, and it is a Work so amazing, that neither the Structure nor the use of it can be ever too much reflected on.

All the *Beavers* which Hut in that Place join in the making of the Dyke ; they cut down Trees of all sorts in the Night, and carry them as was said before : All the Hunters of these Animals agree in this Relation, *viz.* that an old *Beaver* serves as Master Workman to direct the Young, and when they are carrying the Trees ; if they happen to be too weak on one side, then the stronger comes in to their Assistance ; and if any one does not act his Part, all the others let go their hold and beat him ; No Man can comprehend how they interweave the Branches among the Trees they have planted, unless he has seen it, nor is it to be imagin'd that the *Beavers* stop the Water only of little Rivers, for some of them are as wide as the *Seine*. The *Savages* in their *Canoes* are often stopp'd by those Dikes, and it costs them at least two



Days labour with their Axes to make way through them, and when they have made a Breach, the *Beavers* will repair it the next Night.

Those who have made the Works will not suffer any other *Beavers* to come and live within their Liberty, but all join to drive them away, having a regular sort of Government among them.

There are some wandering *Beavers*, which are found abroad and never Hut, and they are such as would not work, and have been therefore justly expell'd by the rest.

When the Winter approaches, the *Beavers* lay up Store of all sorts of Wood to feed on till the Spring, for, 'tis said, they feed on nothing but the Bark and Roots of Trees, and therefore they lay up sufficient Store in the Water, under their Huts, that they may not be oblig'd to go farther for it.

In some Parts of *North America* there are sometimes found white *Beavers*, which are much valued upon the Account of their being uncommon, though at the same Time, their Hair is neither so large nor so fine as that of the common *Beavers*, so those which are quite black are very scarce likewise. See the Figure and a farther Account of the Beaver, in the Description of Three hundred Animals.

T H E

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# THE DESCRIPTION

## Of the FISH call'd a MERMAID.

THE *Siren* or *Mermaid*, as it is described by Ancient Writers, Statuaries and Painters, seems rather to be a Creature of their own Invention than any real Production of Nature. They tell us 'tis a Sea-monster having the Form of a Woman from the Navel upwards, below that of a Fish: Its Face exactly to represent the Human, and its Beauty not inferior to the most lovely of the Fair-sex: Its Voice so sweet and melodious: as to excel that of the whole Race of Man-kind. Its Head adorn'd with long black Hair; which they say, the *Mermaid* is much delighted in combing and displaying, as if sensible it was an Embellishment of Nature that renders her amiable, not only to her Male Companions of the *Briny Ocean*, but tempts even Man to admire her Charms; and a Hundred such-like Stories have been reported of the *Siren*, equally Fabulous.

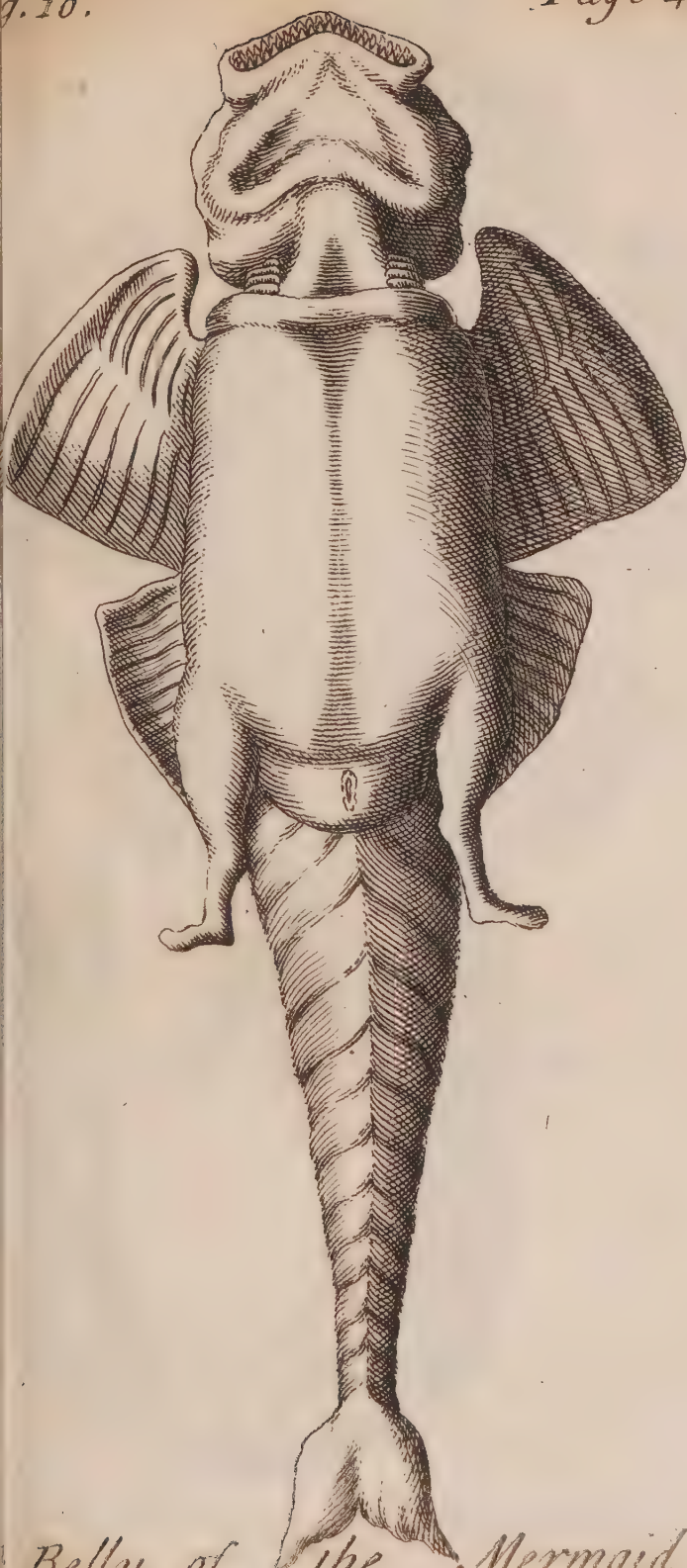
*Bartholinus* says, that there was a very large one Dissected at *Leyden*, in which the Head and Breasts, quite down to the Navel, were of a Human Form; from

from thence down to the Bottom of the Feet, there was, as he expresses it, a Shapeless Flesh, without the least sign of a Tail; and that it had both Hands and Ribs; the Hands was describ'd to consist of as many Fingers and Joints as ours, but there is this singular in the Creature, that all the Bones of the Fingers are more compress'd, and a Membrane, *Netts*, or join the Fingers to one another, as in Web-footed Fowls.

There is taken at certain Times of the Year, in the *Indian Ocean*, as *Athanasius Kercher* relates, near the *Philippine Islands*, a certain Fish of a Human Form: It has a round Head, with an Ear exactly resembling that of a Man's: Its Eyes, adorn'd as they are with Eye-brows, you wou'd judge, says he, both on account of their Position and Colour, to belong to the Human Species rather than to a Fish; its lips, both in Size and Figure are much like ours; it has a continued row of Teeth, not what is common to Fish of Prey, but smooth and very white: Its Breasts resemble those of a Virgin's, being of a Globular Form, and its Skin white; it has two broad Arms or Fins, fitted for swimming, yet not distinguish'd by Hands, Joints, &c. In the Parts subservient to the Propagation of its Kind, in either sex, they are very much like those of the Human, only the *Testicles* of the Male are within the *Abdomen*, below these it terminates wholly in a Fish.

Sir *Richard Baker*, in his *Chronicle*, tells us, that in the Eleventh Year of the Reign of King *Henry* the second, near unto *Orford* in *Suffolk*, certain Fishers took in their Nets a Fish, having the Shape of a Man in all Points, which Fish was kept by *Bartholomew de Glandevile* in the Castle of *Orford* six Months and more, he spake not a Word; all manner of Meats he did gladly eat, but most greedily





Belly of the Mermaid.



raw Fish when he had press'd out the Juice ; oftentimes he was brought to the Church, but never shew'd any sign of Adoration : At length being not well looked to, he stole to the Sea, and never was seen after.

Plate 9, represents the true Figure of an uncommon Fish, which was taken by eight Fishermen, on Friday the 9th of *September* 1737, at *Topsham-bar* near *Exeter*. This curious Species of Nature resembles Man, from the Collar-bone quite down the Body, and very probably it may be of the same kind, with what the Ancients call'd a *Mermaid* ; though it does not tally exactly with any of their Descriptions, yet in several Particulars 'tis the same.

It had a broad, strong Cartilaginous Fin on each Shoulder, in Shape something like the Wings of a *Cherubim*, mention'd in *Sacred Writ* ; with regular Ribs, Breasts, Belly, Thighs, Legs, and small Feet ; the Joints thereto having their proper Motion ; its Toes were web'd, or nett together, by a Membrane, agreeable to what is related of the *Mermaid* ; and to each Thigh there was a Fin : The Tail resembles the *Dolphin's*, which it can turn up to its Shoulders ; and the fore Part of the Body being very smooth and white, the Fish, when 'tis standing with the upper Part of its Body out of the Water ( in which Posture we may suppose it can support itself, by the help of its Tail, Legs, and Fins ) at a Distance it would appear like the Body of a Human Creature, and so, in some Measure make out what the Ancients have reported of the Appearance of the *Mermaid*, swimming with its Body erect over the Waves, and playing on the Water. The Skin of the Back was rough, and of a Dark-colour ; the Mouth large and placed at the very extremity of the Head, nothing like the Human, nor indeed was any Part of the Head.

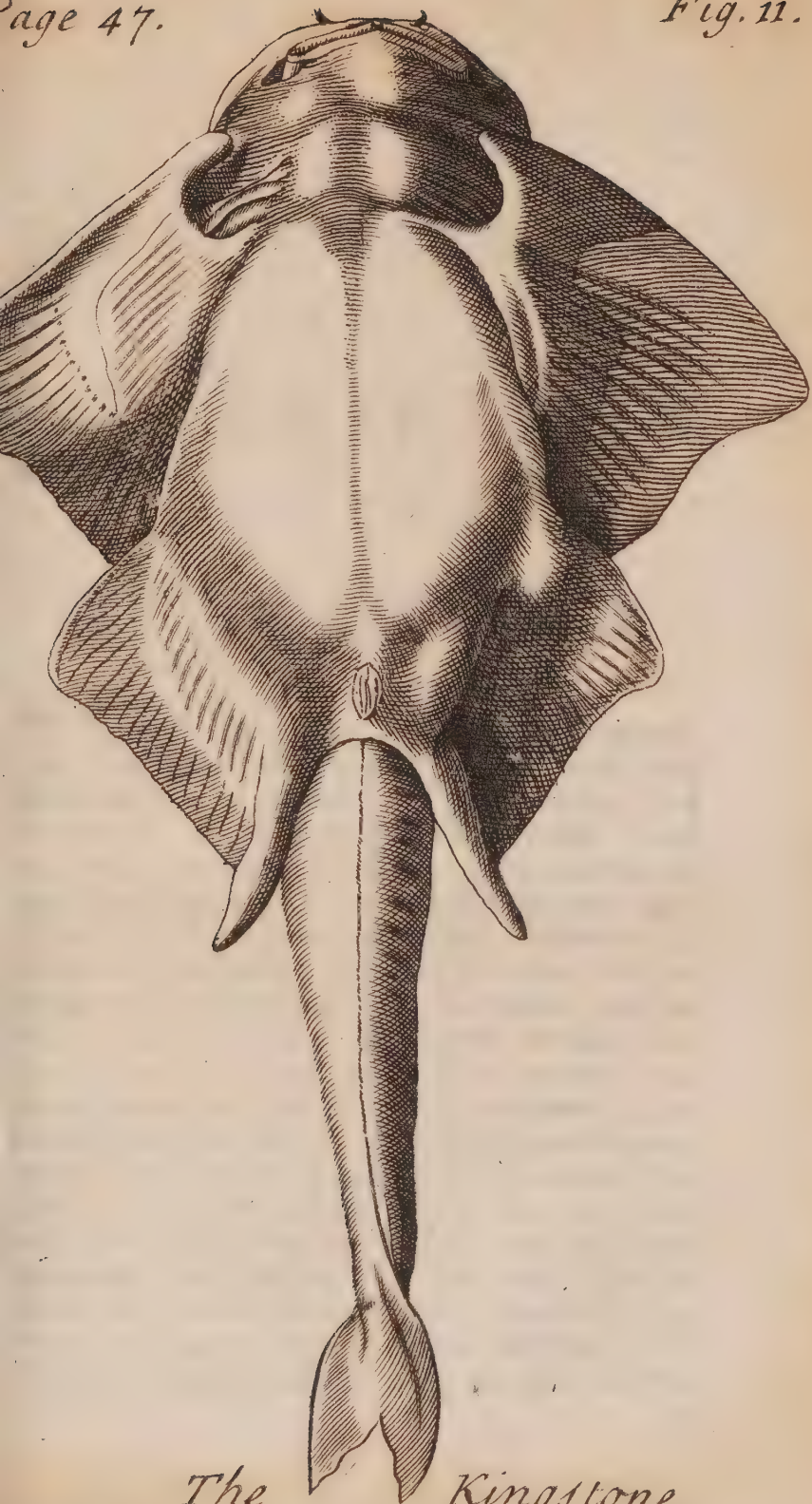
It



It had five rows of sharp Teeth, like what is seen in Fish of prey ; its Eyes were of a middling Size ; it had two Spout-holes, and Nostrils ; a thick Neck, and Face as is expressed in the Figure. It was publickly shown in *London*, where great Numbers of People flock'd to see so extraordinary a Curiosity.

Not many Months after the above Female Fish was taken, a Male of the same Species, was publickly shown likewise, which I am told was taken on the same Coast with the former ; tho' the Owners of it, gave out, that it was taken in *Tangier-bay*, on the Coast of *Barbary* ; and how that when it came on Shore, it destroy'd two Men, and that after it had received several Blows it ran above three hundred Yards before it was taken ; which is only a Romantick Story, to raise the Wonder of the Ignorant, and so deceive them, to serve their own turn. This Fish answering exactly the Description of the Female above mention'd ( difference of Sexes only excepted ) it needs not a particular Description : The size of these two Fish was much the same, their Length about four Foot and a half, the Compass of their Bodies, nearly the same with that of a small size Man,

Some Persons thinking these Fish to be no other than the *Kingstone*, I have here added the Figure of the latter, exactly copied from Nature, so that, by comparing them with the former, those that doubt of this matter may be satisfied 'tis of a different Species.



*The Kingstone.*





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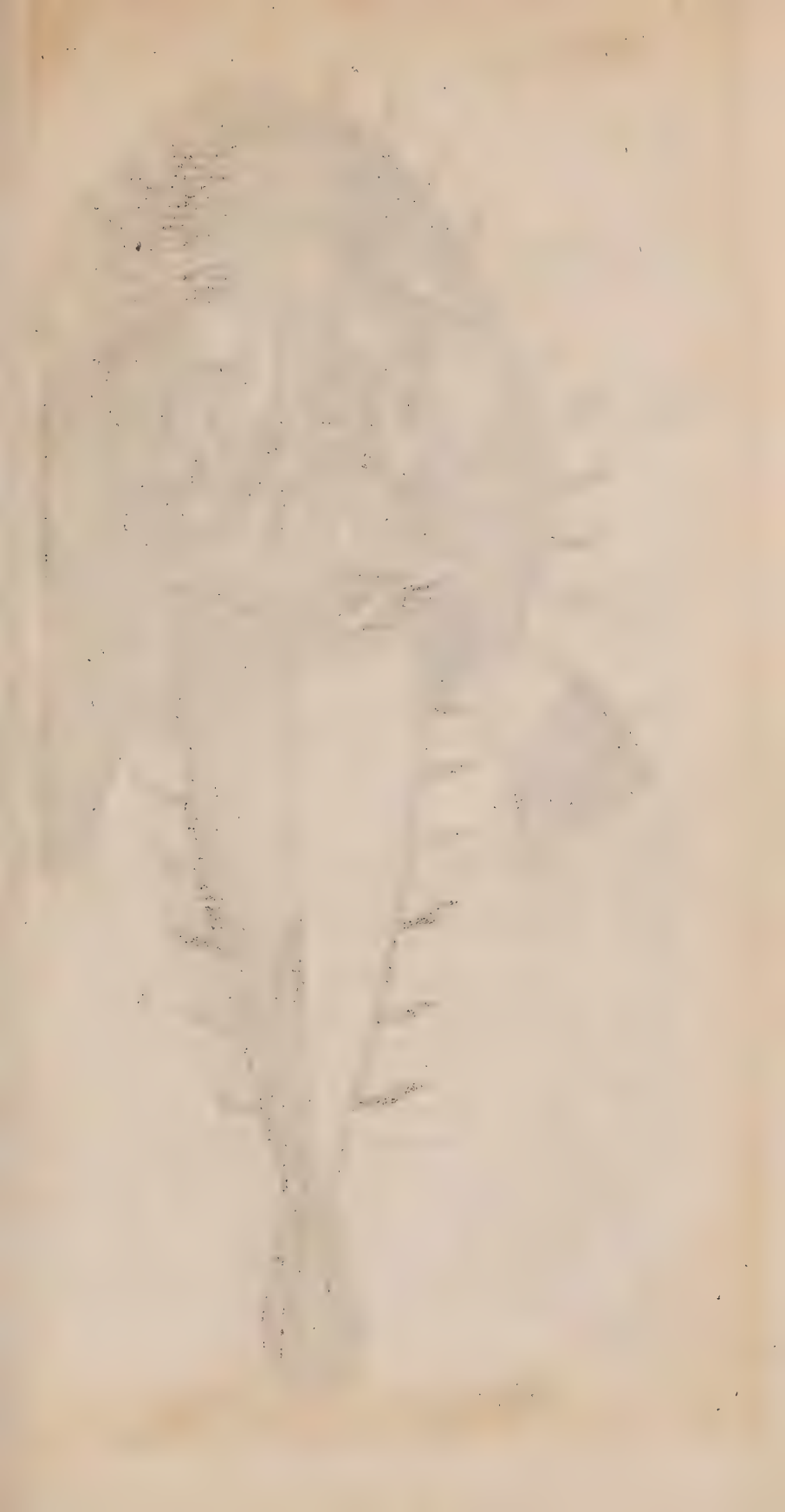
T H E  
D E S C R I P T I O N  
O F T H E  
K I N G S T O N E

**T**HIS Fish grows to a large Magnitude, sometimes weighing a Hundred and sixty Pound weight. The Back is of an Ash colour, and the Skin of it very rough, so as to polish Wood or Ivory; the *Turks* commonly make sheaths for their Scyniters of it; the Belly is white and soft: 'Tis of the Cartilaginous kind, and Viviparous; it brings forth its young twice in the Year, *viz.* in Spring and Autumn, but those in Autumn are the best to eat, they always have seven or eight at a Time, they have two broad Fins on each side, the uppermost of which, like the *Mermaid's*, resemble *Cherubims* Wings; these they can close under their Belly, and in them they often carry their Young, when they apprehend any Danger: This lead *Aldrovandus* into the Mistake that they took them into their Bellies. To the lower Fins are affixed two round thick *Processes*, which assist the Fish in swimming, in the Nature of Oars. The Male and Female are easily known, the distinction

on

on of the Sexes being very visible : They often couple with the *Ray*, whence comes the Fish call'd by the *French*, *Angelot*, between a *Ray* and a *Kingstone* : *Aristotle* says, they can change their Colour like the *Cameleon*, but *Rondeletius* with very good Reason denies it, for this Fish is far from being transparent, and the Skin is so thick, that no Agitation of the Humours cou'd ever appear through it. The Flesh of this Fish is hard, and not very agreeable to the Taste, nor are they often brought to our *English* Markets.

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Fishing Frog.

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# THE DESCRIPTION OF THE *FISHING-FROG.*

**T**HE Fore-part, or Belly of this Fish, resembles that of a *Frog* or *Toad*, but its hinder Part ends in a long and sharp Tail, the Extremity or Fin of which is Fleshy ; and is ( after the manner of Web-footed Animals ) widely expanded by *Cartilaginous* Fin Bones, extended through it length-ways ; this Fin is about a Span long, and from thence, at about six Spans Distance, begins the Head.

At about a Hand's Breadth from this Fin, there arises another on the upper Part of the Tail, widest and transparent on the lower Part ; beneath the Tail there arises, opposite to this, another Fleshy Fin like the Tail Fin ; above this last Fin, at about four Fingers Breadth towards the Head, the Vent is seated ; and a little below that, another Aperture appears, in which the Bladder and *Cornua Uteri* are terminated ; near the Middle of the Belly, on each side, grows a large and Fleshy Fin, about a Span broad, and near as long : In the

F

Middle

Middle of the Back two Tufts arise of about a Fingers Length each, and about two Hands Breadth from the upper Tail Fin; and about a Hand's Breadth from hence there arises another Tuft, something longer than the former.

The Eyes are placed at about four Fingers Breadth from this Tuft, and at about six Fingers Breadth distance from each other, and between the Eyes (but forwarder much, nearer the Confines of the upper Lip) arise two Horns, tufted at their Extremities with round Filaments; by the great Agility of which, it is thought to draw the small Fish it preys on within the Compass of its Jaws.

A little below the *Diaphragm*, on its upper Part, are two large Fins in the Shape of a Hand, and divided into five Fingers.

Round the Mouth, and so down the Sides to the Tail, there grows small Fins, Tufts, or Flags, at about three Fingers Breadth one from the other.

The Jaws of it extend a great Width, and are thick beset through their whole Circumference with crooked Teeth bending inwards; these Teeth are set in double or triple Rows, and this is peculiar to them, that the Inner, which are longer than the others, are moveable inwards, and may be depressed within the Flesh; but they cannot be moved outwards, exterior Teeth of a less size obstructing their Motion that way; the large Teeth are also covered with a Skin like a Sheath, as far as the Middle of them, which move to and fro.

Just withinside of the Jaws arise two Protuberances, like Bolsters, beset with Teeth on either Side, and meeting together in a Point; but without Teeth on the hinder Part of them. In the upper Jaw are two other Protuberances answering

swering to the Former, but situate transversely, and armed with a double row of longer Teeth; behind which, near adjoining to the Jaws, are placed the two Grinders, each near an Inch long. These Teeth perform their Office by the Help of a Tendinous Muscle, which arises from the Middle of the Back-bone, and proceeding from thence upwards, soon divides itself, and is carried in two Branches to the Teeth before-mentioned.

There are, on each side, three Ear-fins; and the Aperture of the Jaws begins just under the large Side-fins. *Charlton Onomast. Zoicon.*

The following Account of this Fish, was publish'd in the *London Evening-Post*, October 26, 1736.

Last *Wednesday* was thrown a Shore, at *Powderham* in *Devonshire*, that wonderful Fish called the *Toad-fish* or *Fishing-frog*. 'Tis four Foot long, has a Head like a *Toad's*, with a Mouth large enough to take in a Middle-siz'd Dog, it opening twelve Inches wide; he has two little Feet coming out of his Belly, like the Feet of a Goose. One of this Kind was dissected in the Presence of King *Charles the second*, at the College of *Physicians, London*.

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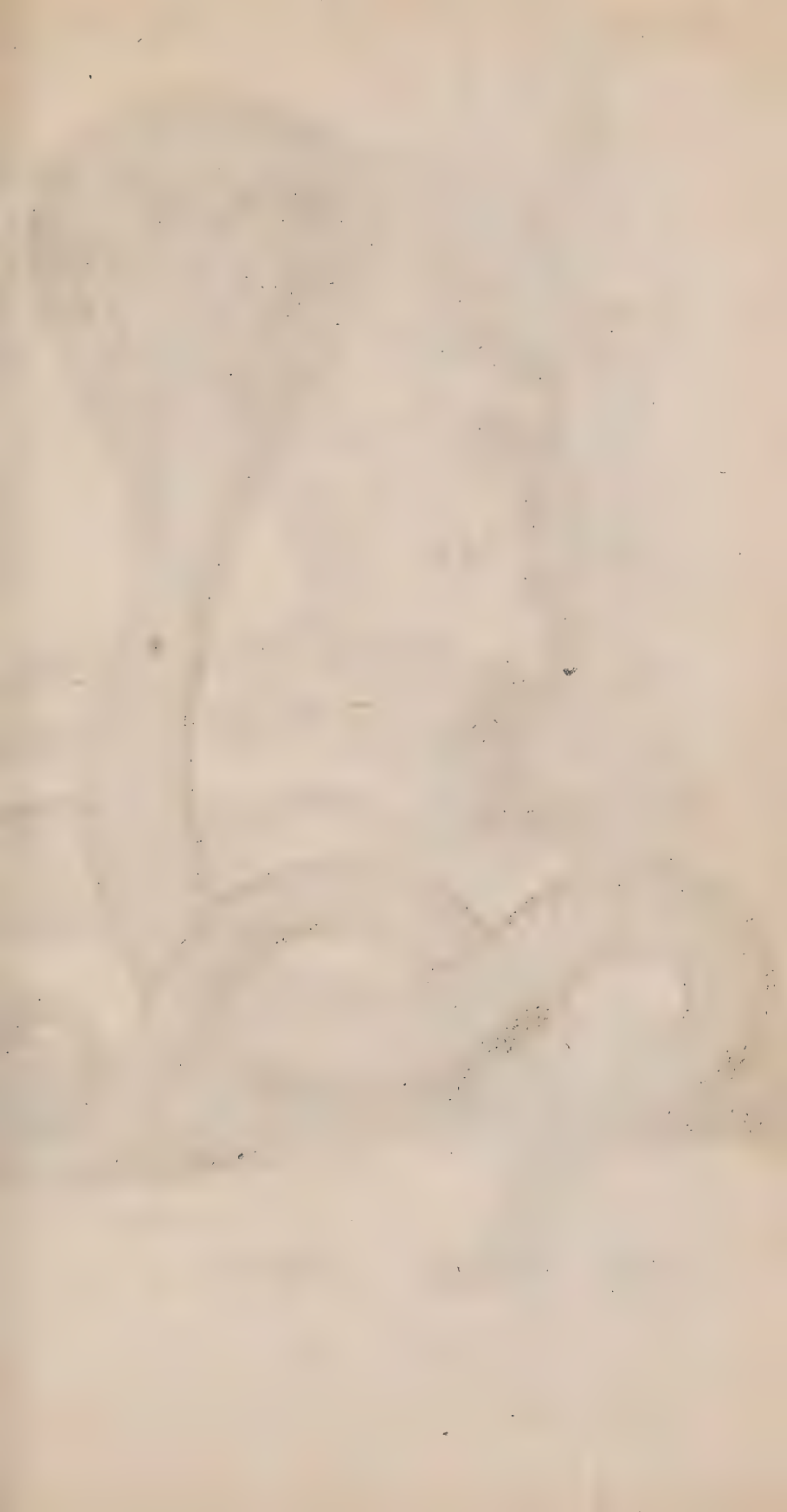
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# THE DESCRIPTION OF THE SEAL.

**T**HE Sea *Wolves*, or *Seals*, which some call Sea *Calves*, are as big as Mastiffs. They are almost always in the Water, or at least they never go far from the Sea-side: They live upon Fish, and resort to cold Countries: There are great Numbers of them in several Parts of *North-America*, especially about the Mouth of the River St. *Laurence*. When these Creatures come a Shore to whelp, they get upon a Rock quite encompass'd by the Sea to leave their young ones; the Fishermen beset the Place, and there kill Multitudes with Staves, as they are making back to the Sea; one stroke upon their Noses makes an End of them, and sometimes five or six Hundred are thus taken in an Hour; they only crawl along, not being able to run by reason of the shortness of their Legs, their Feet being like Fins. They do not make use of their Teeth to defend themselves, though they have very good ones; and a large Head, much like a *Calf's*, but make a great Noise,





*The Hooded Serpent.*



*The Seal.*





Noise, without doing any Harm. This Sport is no less Pleasant than Profitable, and no way chargeable. Of these Creatures they make Oil, which is the best they have in those Parts for Burning: The Skin is made use of to cover Trunks, &c. The Old *Seals* have their Skins spotted black and of a dull white; the Young ones are all white; the Hair of both very short: Their Flesh is very fat, those who love strong meat may eat it; but it is very indifferent Food whatsoever way it is dress'd.

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A  
 DESCRIPTION  
 OF THE  
 HOODED SERPENT.

**I**N the Island of *Maurice*, near *Batavia*, a Dutch Settlement in the *East-Indies*, among other strange Creatures, there are, as Mr. *Fran. Leguatt*, in his Voyage to that Country relates, divers species of *Serpents*; of which the most formidable and Dangerous, are the *Cucullated* or *Hooded-kind*, represented by Figure 14, He says, as the *Sieur de la Case* was hunting one Day in the Woods, adjacent to *Batavia*, he spied one of this sort of *Serpents* descending from a Tree, making, as it came down, a terrible hissing: It was in thickness, about the Size of a Man's Arm, and in length, about eight Foot. As this venomous Creature made towards him, seemingly with great Fury, to attack him, he presented his Piece, and had the good Fortune to kill it on the Spot: It had on its Head a Kind of Hood or Cap, much like that which *Tavernier* mentions in his Travels. Monsieur *de la Case* was so much affrighted at the sight of this *Serpent*, and for Fear of meeting with another, that he would not stay to search for the Stone, which is said to be found in the Head of this Animal, so much fam'd for its Excellent Virtue, in being an Antidote against the Poyson of any venomous Creature, but quitted the Woods with the utmost Precipitation.

The

The same Author reports, that there have been seen in that Country, *Serpents* fifty Foot long; and the Skin of one, that was but twenty Foot long, is shewn in *Bataria*, that swallowed an Infant.

### *Some General Observations on Serpents.*

THE Wisdom and Subtilty of the *Serpent* are frequently mention'd in Scripture, as Qualities, which distinguish it from other Animals, and several are the Instances, wherein it is said to discover its cunning. 1st, When it is old by squeezing itself between two Rocks, it can strip off its old Skin, and so grows young again. 2dly, As it grows blind, it has a Secret to recover its Sight by the Juice of *Fennel*. 3dly, When it is assaulted, its chief care is to secure its Head, because its Heart lies under its Throat, and very near its Head. And 4thly, When it goes to drink at a Fountain, it first vomits up all its Poison, for fear of poisoning itself, as it is drinking: With some other Qualities of the like Nature. *Calmet's Dictionary*.

Our excellent *Milton* has very curiously describ'd the artful and insinuating carriage of the *Serpent*, upon his first approach to speak to *Eve*.

*He bolder now, uncall'd, before her stood,  
But as in great admiring: Oft he bow'd  
His turret Crest, and sleek enamell'd Neck,  
Fawning; and lick'd the Ground, whereon she trod.  
His gentle dumb Epressions turn'd at length  
The Eye of Eve, to mark his play: He glad  
Of her Attention gain'd, with Serpent Tongue  
Organic, or impulse of vocal Air,  
His fraudulent temptation thus began.*

BOOK IX.

The



The fiery *Serpents*, sent by God Almighty to annoy the Rebellious *Israelites* in the *Wilderness*, (according to the Accounts of some learned Authors) are very common both in *Egypt* and *Arabia*, insomuch that there would be no living in those Countries, if these *Serpents* had not, by Providence, been debarred from multiplying as other *Serpents* do. For the *Arabians* tell us, that, after they have coupled together, the *Female* never fails to kill the *Male*, and that her *Young Ones* kill her as soon as they are hatched. *Herodotus*, who had seen several of these *Serpents*, says, that they very much resemble those, which the *Greeks* and *Latins* called *Hydræ*; and *Bochart* has quoted a great Number both of ancient and modern Authors, to prove, that they really are the *Hydræ*. They are but short, are spotted with divers Colours, and have Wings like those of a *Bat*. The *Ibis* is their mortal Enemy; and *Herodotus* tells us, that, at *Butos* in *Egypt*, he had seen a vast Quantity of their Skeletons, whose Flesh these Birds had devour'd. They love sweet smells, frequent such Trees as bear Spices, and the Marshes, where the *Aromatick* Reed or *Casia* grows, and therefore, when the *Arabians* go to gather the *Casia*, they cloath themselves with Skins, and cover all their Head over, except their Eyes, because their biting is very dangerous. *Bochart de Animal. sacr. Pt. 2. lib. 3. c. 13.*

And of the same kind as some think, was the *Viper* which came upon the Hand of *St. Paul*. They describe them to be a small kind of *Serpents*, the largest not above half an Ell long, and about an Inch thick, but so very poisonous, that the Bite of it will sometimes kill a Person in a Moment, or cause a sudden Inflammation all the Body over, as the People of *Malta* expected of *St. Paul*. The People of that Island however have a Tradition,

*Pa. 57.*

*Fig. 15.*



*Locust.*



tion, that, ever since the Time, that the Apostle was bitten by one, whatever *Vipers* are found there, have no Venom in them, and that some of them, when out of Curiosity, carried into *Sicily*, become as poisonous as others, but when brought back to *Malta* again lose all their venomous Quality. Nay, they add farther, that as there are great Numbers of petrified *Vipers*, and other *Serpents* in this Island, those who carry Pieces of these about them, will be preserved from the biting of any venomous Animal, and that those, who for want of them, chance to be bit, may certainly be cured, by taking some of the Powder of one of the Petrefactions mingled in a little Water. *Calmet's Comment and Diet.*

*Hercules* was one of the Gods, whom the People of this Island worshipped, and to him they ascribed the Power of curing the Bite of *Serpents*. *Beausobre's Annot.* (see divers Figures of *Serpents*, &c. in the Description of 300 Animals.

I shall add a very particular Remark on the Female *Viper* and *Mouse*, lately communicated to me by an ingenious Person who was an Eye Witness of the Fact. A Young Surgeon in *London*, who, in some Part of his Business, had frequent Occasion for *Vipers*, having bought a Parcel, among which he observed a Female one big with Young, and knowing the Gentleman above-mentioned who told me this, to be a Curious Observer of Nature, invited him to see an Experiment, which he had himself proved several times before. Which was this; all the *Vipers* were put into a large Box, the Sides and Top of which were Glass; and having procured a Parcel of Mice, he put one of them into it among the *Vipers*; the *Mouse* run about the Box, and over any of the *Vipers* promiscuously, without shewing any Sign of Fear from them, endeavouring to gain its Liberty; when



when presently the *Viper* which was big with Young espies the *Mouse*, and fixing her Eyes steadfastly upon it, put the little Animal into a very great Terror, and to avoid its Enemy fled to the most distant Part of the Box; but wheresoever the *Mouse* moved to the Eyes of the *Viper* constantly followed, its Head always pointing towards it, with its Mouth wide open, and its Jaws lying flat to the Bottom of the Box, till at length, the *Mouse* finding no Way to escape, took a sudden spring, and run swiftly into the *Viper's* Mouth, and so was devoured: My Friend did assure me that he saw three or four *Mice* do the same, and that not any of the other *Vipers* stirr'd, or took any Notice of the *Mice*.

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A

# NATURAL HISTORY

O F

## L O C U S T S

Found in *Barbary*, &c.

**D**R. *Thomas Shaw*, in his Travels, speaking of the Insects of *Barbary*, gives the following Account of a Particular Species of *Locusts* found in that Country.

Of *Locusts*, which are called *Mantes* by the Naturalists, I am to add one of three Inches long, of a brown Colour, with the Fore-legs armed with strong horny Claws. There is another of the same size of the *Cucullated* or *Hooded-kind*, \* which hath the upper Wings streaked with a light Green, and the Membranaceous one finely chequer'd with Flesh, brown, and scarlet Colours ; besides a Third Species of two Inches long, with elegant green Wings. But the Chief Characteristicks of the Latter, are two *Antennæ*, which Project, like a Couple of Feathers, from the Forehead.

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\* *Vide Page 60, Figure 20, of the Supplement to the Description of 300 Animals.*

I never, says he, observed the *Mantes* to be gregarious ; but the *Locusts*, properly so called, which are frequently mention'd, by sacred as well as prophane Writers, are sometimes so beyond Expression. Those which I saw *Ann.* 1724, and 1725, were much bigger than our common *Grasshoppers*, having brown spotted Wings, with Legs and Bodies of a bright Yellow : Their first appearance was towards the latter End of *March*, the Wind having been for some Time Southerly ; and in the Middle of *April* their Numbers were so vastly encreased, that in the Heat of the Day, they formed themselves into large Bodies, appeared like a Succession of Clouds, and darkened the Sun. About the Middle of *May*, when their Ovaries were turgid, each of these Bodies began gradually to disappear, retiring into the *Mettijah*, and other adjacent Plains to deposit their Eggs. Accordingly, in the Month following, their young Broods began gradually to make their Appearances ; and it was surprising to observe, that no sooner were any of them hatch'd, than they immediately collected themselves together, each of them forming a Compact Body of several hundred Yards square ; which marching afterwards directly forwards, climbed over Trees, Walls, and Houses, eat up every Plant in their Way, *and let nothing escape them.* The Inhabitants, to stop their Progress, made Trenches all over their Fields and Gardens, and filled them with Water, or else placing in a Row great Quantities of Heath, Stubble, and such like combustible Matter, they set them on Fire upon the approach of the *Locusts* : But all this was to no Purpose ; for the Trenches were quickly filled up, and the Fires put out by infinite swarms succeeding one another ; whilst the Front seemed regardless of Danger, and the Rear pressed on so close, that a Retreat was impossible. A Day or  
two

two after one of these Bodies was in Motion, others were already hatched to glean after them ; gnawing off the young Branches and the very Bark of such Trees as had escaped before with the loss only of their Fruit and Foliage. So justly hath the inspired Writer compared them to a great Army ; and observed, that *the Land is as the Garden of Eden before them, and behind them a desolate Wilderness. Joel. Chap. 2.*

Having in this Manner lived near a Month upon the Ruin and Destruction of every Thing that was green or juicy, they arrived at their growth, and threw off their Worm-like State, by casting their Skins. To prepare themselves for the Change, they clung by their hinder Feet to some Bush, Twig, or Corner of a Stone ; when immediately, by an undulating Motion used upon the Occasion, their Heads would first appear, and soon after the rest of their Bodies. The whole Transformation was performed in seven or eight Minutes ; after which they lay for a small Time in a languishing Condition ; but as soon as the Sun and Air had hardened their Wings, and dried up the Moisture that remained upon them after the casting of their Sloughs, they return again to their former Voracity, with an addition both of Strength and Agility. But they continued not long in this State, before they were entirely dispersed, as their Parents had been before, after their laying of their Eggs ; and as the Direction of the Marches and Flights of them both was always to the Northward, it is probable they perished in the Sea ; a Grave, which according to these People, they have only in common with other winged Creatures.

These Insects, sprinkled with Salt and fried, are, in Taste, not much unlike the River Cray-fish. The Jews were allowed to eat them ; and *Ludolphus* hath



hath an ingenious Dissertation, wherein he endeavours to prove, that the *Skellaxim*, or *Quails* as we render it, which the *Israelites* fed upon in the Wilderness, were only a Species of *Locusts*. But the Holy Psalmist, in calling them *Feathered-fowls*, seems entirely to contradict that Supposition. The *Axel'ses* then which St. *John* the Baptist fed upon in the Wilderness, were these *Locusts*; and provided their appearances in the Holy Land, were at the same Time I saw them in *Barbary*, it may be presumed that St. *John* entered upon his Mission at that Season.

*M. le Bruyn*, in his Voyage to the *Levant*, tells us, that some Weeks after he arrived at *Rama*, viz. the ninth of *October*, there was a South-east Wind, which coming from the Wilderness across *Jordan*, caused a violent heat, which lasted several Days. 'Tis perhaps, says he, to this Wind that is to be attributed the prodigious Number of *Locusts* which flock hither in certain Years, and which cover the Face of the Earth that one can hardly see it for them. These Insects which make so great a waste, are about as big as our *Grasshoppers*: I was told that one time in the Space of two Hours they devoured all the Grass and Herbs that were round about *Rama*; and that even in the Garden of the House where I lodg'd, they had eaten up the Stalks of *Artichokes* in the very Ground, from whence it is easie to guess what damage they can do. Most Birds eat them and make so great a Slaughter of them, as well for their own Nourishment, as to prevent the Mischief which they cause, if at least one may attribute this Providence to Birds: All of them to the very *Storks* declare War against these *Locusts*; for when the Sun begins to set, this Vermine lie all of them upon the Ground, being no longer able to fly, and there rest till the Sun rises, and so become an easie Prey

to the Birds. At the Time when the *Locusts* engender, they make a Hole in the Earth about a Foot deep, and there lay their Eggs which are about the bigness of a sugar'd Aniseed, and which keep together in a little oblong Bundle to the Number of fourscore at least. From these Eggs in fifteen or sixteen Days Time proceed young *Locusts*, but in so great a Quantity that one would be frighted at the Sight: They are all over black when they are first hatch'd, but in a Days Time they change and become green, as if the Grass on which they lie had communicated its Colour to them; however 'tis three Weeks before they can make use of their Wings.

I shall add, says our Author, the Report which I have heard the Inhabitants of *Cyprus* make on the same Subject. It happened in the Year 1668. that in all the *Island* of *Cyprus*, but chiefly about *Tamagusta*, there came such a great Number of *Grasshoppers*, that when they arose in a Flight they seemed to make such a dark Cloud, that the Rays of the Sun could hardly appear through them; this continued about a Month, at which Time the *Bassa* ordered all the Country People to bring every Man a certain Measure full of them to his Palace at *Nicosia*, which he buried afterwards in holes which he caused to be digg'd for that purpose without the Town, that they might not infect the Air.

In the mean Time the *Greeks* among themselves made Processions and Prayers ten Days together, to be delivered from this Scourge which was so destructive to the Country, and for this purpose they carried also in Procession the Image of the Virgin *Mary*, with the Child *Jesus* in her Arms, which it is said was drawn by *St. Luke*.

It happened one Day when they perform'd the like Ceremony on Account of the *Locusts* or *Grasshoppers*,

## 64 A DESCRIPTION of

*oppers*, and that the Image was placed on the Theater, there appeared immediately a Sort of Birds like unto *Plovers*, who fell upon these Insects, and devoured a very great Quantity of them. And that the next Day when the *Grasshoppers* began to take their Flight from the Earth by reason of the heat of the Sun; there arose a great Wind from the Land, as commonly happens, which carried them so far, that towards the Evening when they were tired, because the heat of the Sun was over, they were all drown'd in the Sea, which appeared some Time after, when the Sea Wind drove them in great heaps to the Shore, and after this Manner the Island was freed from this terrible Scourge. They add that those Birds which had devour'd great Numbers of the *Grasshoppers*, were never seen before nor since, and that the *Bassa* forbade to kill any of them upon pain of Death. I have myself seen, says he, a great Number of these Insects about *Nicosia*, and that the Places where they had fed, were scorched as if Fire had burnt them, and every step which my Horse made, he destroyed at least ten or twelve of them.

Of these *Locusts* or *Grasshoppers*, *Thevenot*, in his Travels, tells us, that in that Part of *Scythia*, which the *Cossacks* inhabit, there are infinite Numbers of them (especially in dry Seasons) which a North-east Wind brings over from *Tartary*, *Circassia*, and *Mingrelia*, which are seldom or never free from them; that they fly in the Air all compact together, like a vast Cloud, sometimes fifteen or eighteen Miles long, and about ten or twelve Miles broad, so that they quite darken the Sky, and make the brightest Day obscure; and that wherever they light, they devour all the Corn in less than two Hours Time, and frequently make a Famine in the Country. These Insects, says he, live.



live not above six Months; and when they are dead, the Stench of them so corrupts and infects the Air, that it very often breeds dreadful Pestilences.

I have been somewhat the longer in my Account of the *Locusts*, because, I thought it might do Service in helping to explicate the first eleven Verses of the Second Chapter of *Joel*: Where the Prophet is so exceeding strong in his Metaphors, when describing an Army of these Insects, that it would be very difficult, for any common Reader to understand him, without being acquainted with the Natural History of these Voracious Vermin. The Prophet's Words run thus.

*Blow ye the Trumpet in Zion, and sound an alarm in my Holy Mountain: Let all the Inhabitants of the Land tremble: for the Day of the LORD cometh, for it is nigh at Hand;*

*A Day of Darkness and of Gloominess, a Day of Clouds and of thick Darkness, as the Morning spread upon the Mountains: A great People and a strong, there hath not been ever the like, neither shall be any more after it, even to the Years of many Generations.*

*A Fire devoureth before them, and behind them a Flame burneth: And the Land is as the Garden of Eden before them, and behind them a desolate Wilderness, yea, and nothing shall escape them.*

*The Appearance of them is as the Appearance of Horses; and as Horsemen so shall they run.*

*Like the Noise of Chariots on the tops of Mountains shall they leap: like the Noise of a Flame of Fire that devoureth the Stubble, as a strong People set in Battel array.*

*Before their Face the People shall be much pained: all Faces shall gather blackness.*

*They shall run like mighty Men, they shall climb*



*the Wall like Men of War, and they shall March every one on his ways, and they shall not break their ranks.*

*Neither shall one thrust another, they shall walk every one in his Path: And when they fall upon the Sword, they shall not be wounded.*

*They shall run to and fro in the City: They shall run upon the Wall, they shall climb up upon the Houses: they shall enter in at the Windows like a Thief.*

*The earth shall quake before them, the Heavens shall tremble, the Sun and the Moon shall be dark, and the Stars shall withdraw their shining.*

*And the LORD shall utter his Voice before his Army, for his Camp is very great: For he is strong that executeth his Word, for the Day of the LORD is great and very terrible, and who can abide it?*

And in the 25th Verse of the same Chapter, GOD calls the Locust, the Canker-worm, Caterpillar, and the Palmer-worm, his great Army which he sends among a wicked and rebellious People. And how proper the Expression is, in Relation to the Locusts, in particular, will farther appear from the Account which Aldrovandus and Fincelius give us of these Animals, viz. That in the Year of our Lord 852, an infinite Number of them were seen to fly over twenty Miles in Germany, in one Day, in the Manner of a Formed-Army, divided in several Squadrons, and having their Quarters apart, when they rested; that the Captains marched a Days Journey before the Rest, and chose the most Opportune Places for their Camp; that they never removed 'till Sun-rising, at which time they went away in as much Order, as an Army of Men could do; that at last having done great mischief, wherever they passed (after Prayers were made to God) they were driven, by a Violent Wind, into the Belgick-Ocean, and there drowned; but that being  
cast,

cast, by the Sea upon the Shore, they covered a hundred and forty Acres of Land, and caused a great Pestilence in the Country; which is enough to shew how dreadful a Punishment this was: The common *Locusts* (as *Aristotle* and *Pliny* have describ'd it) is an Animal so fierce and formidable, that one single one would kill a *Serpent* by taking it fast by the Jaws, and biting it to Death.

And yet 'tis remarkable, that the *Scorpion* lives chiefly upon *Locusts*; as an ingenious Gentleman hath observed, who lived several Years in *Barbary*. He says, that seeing oftentimes *Locusts* sticking up in the Ground, as if they were set there, by looking, he found that some Part of them was always eat away, and that those Places were the Holes of *Scorpions*, who had dragg'd their Prey thither, and fed on it as they had Occasion.

The Figure of the *Locust* in Plate 15, was taken from the Creature itself, by Mr. *Eleazar Albin*, which was lent him for that Purpose by a Gentleman, who had some of them sent him from a Country in the *Levant* where they are common, and may therefore be depended upon, to be a true Draught both for size, and all other respects, of one of those destructive Insects.

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T H E  
N A T U R A L H I S T O R Y  
O F T H E  
*E P H E M E R O N*:

*A Fly that lives but five Hours*

**T**H E *Ephemeron*, as it is an unusual and Special Instance of the Brevity of Life ; so I take it to be a wonderful Instance of the special Care and Providence of God, in the Conservation of the Species of that Animal. For 1. As an Animal whose Life is determin'd in about five or six Hours Time (*viz.* from about six in the Evening till about eleven o'Clock at Night) needs no Food ; so neither doth the *Ephemeron* eat, after it is become a Fly. 2. As to its Generation ; in those five Hours of its Life, it performs that, and all other necessary Offices of Life : For in the Beginning of its Life, it sheds its Coat ; and that being done, and the Poor little Animal thereby render'd light and agile, it spends the rest of its short Time in frisking over the Waters, and at the same Time the Female droppeth her Eggs on the Water, and the Male his Sperm on them to impregnate them. These Eggs are spread about by the Waters ; descend





Fig. 16.



Fig. 17.



Fig. 18.

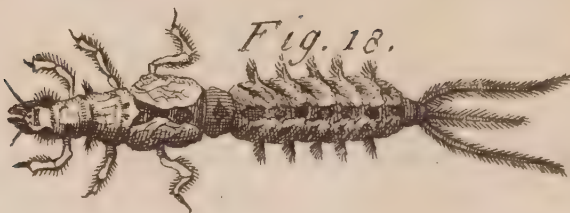


Fig. 19.



Fig. 20.



The Ephemeron.

pend to the Bottom by their own Gravity ; and are hatch'd by the warmth of the Sun, into little Worms, which make themselves cases in the Clay, and feed on the same without any need of parental Care.

*Derham's Physico Theology*, Page 247. Note (f)

*I shall add a further Account of this Insect from Swammerdam ( who publish'd the Life of the Ephemeron in low Dutch ) translated by the late Dr. Edward Tyson, and printed in the Year 1681. from whence the above short Account was extracted by the late ingenious Dr. Derham, and to which very scarce Treatise he refers his Readers for a larger Account of this wonderful Creature.*

This *Ephemeron* is a four wing'd Creature, furnished with two small Horns, six Legs, two very long and straight hairy Tails ; 'tis found Yearly in all the Mouths or Entrances of the *Rhine*, as the *Maes*, the *Wael*, the *Leck*, and the *Isel* ; about Midsummer flying on the Surface of the Water for three Days succeeding ; but with this difference, that those which have lived and flown the first Day, die the same Evening ; and the same happens the second and third Day, and then ceaseth till next Year and Season when the like happens again.

This very wonderful flight of this Insect, living in this Form and Shape but five Hours, I have for the first Time says our Author seen in a Branch of the *Rhine*, running by *Cuilenborch* in the Year 1667. I find also in *Clutius*, who hath writ of these Insects, that they are also found at *Arnhem*, *Zutphen*, at the cut by *Utrecht*, at *Roterdam*, and several other Places.

The Eggs of the *Ephemeron* being in the fore-mentioned manner shot in the Water, and besprinkled with the Milt or Seed of the Male, they sink gradually, and are by means of the streaming Water spread here and there on the Clay or Ground

Ground; and out of the Egg proceedeth a six legged Worm, called by the Seamen and Fishermen *Aas*, or *Shore-baite*: How long these Eggs remain under Water unhatch'd, or in how many Days the tender Limbs of the Worm are so far grown as to have Strength to break through the Shell or Skin, is very difficult to be declared; but if after some considerable Time you dig in the Clay about the Places where these Worms are, you will find a great Number of six Legged and very small Worms; which differ not in Form and Shape from those which are bigger: I said a considerable Time, because they grow but slowly, for in the following Year in the Month of *June*, when the full grown Worms shed their Skin, these Worms are in size but of about one *Holland* Inch long, *viz.* one third Part of the Length of the full grown Worm.

Besides these two Sorts of Worms so considerably different in size, there is at the same Time also found in the Clay a third Sort, which exceed the smallest Sort, being double the size of them, and are less than the full grown: Besides those of each Size and Age differ somewhat in length and thickness among themselves: So that whereas the full grown Worm at the Time that it is ready for flight is about three *Holland* Inches long, the Middle Sort about two, and the smallest about one Inch long, of the same Measure.

There is also this further difference as to their Age, that those of the first Size have not only no Wings, but also no appearance of them; but in the second Size the Wing-cases appear, which in the third Size are fully and plainly visible, and as a Flower in its Bud, growing on, and as it were creeping out.

Having observed what kind of Worm is hatched out of the Egg of the *Ephemeron*, I shall next describe



scribe what the Worms thus hatched first do, and what is their Food.

It is very requisite to know that the Worms rarely or never are found on the Ground of the Rivers, or swimming in the Body of the Water, for notwithstanding they swim indifferently swift, and make a kind of a Snake-like Motion in the Water, yet they keep themselves always close to the Sides or Banks of the Rivers, in the stillest Places of the Water where they have their Cells, and where the Places dug for finding them are moist Clayie, there are they found in greatest Number; yet are they seldom found on the outsides of the Clay, but they have their Habitation within the Body thereof, and that in oblong round Cavities which themselves have made, not sloping downwards, but strait and horizontal, and therefore *Vander Kracht* in *Clutius* saith true, that these Insects have each its proper Cell. And as the Bees by an admirable and inimitable Art make their own Cells out of Wax; in like manner are these excavated Cavities like Tubes made by these Worms, and digged out according to the size of their Bodies, which they by degrees enlarge as their Bodies increase in bigness; so that the Old Worms live in wider Tubes or Cells, and the young ones in narrower.

To this Purpose the wise Creator hath furnished them with fit Members; for besides that their two Fore-legs are formed somewhat like those of the common Mole, he hath also furnished them with two Toothy Cheeks, somewhat like the Sheres of *Lobsters*, which serve them more readily to bore the Clay. The Worms being placed in a Vessel with Clay mixed with some Water, you will immediately see them begin to make their Cells, and if it happen you provide them not Clay enough, they cannot hide the design, but will be continually wrooting



wrooting the Clay through and through, and hiding under it sometimes their Head and sometimes their Body, or Tail, always endeavouring to make new Cells.

The Fishermen assure us from their Experience that when the Water of the River falleth or runneth off, they then bore their Cells lower and deeper in the Clay, and when the Water riseth they also rise higher; which I judge to them most needful, in Consideration of the many Lungs and Air-vessels in these Worms, for to supply which they must often take fresh Air, which they could not do, if they remained in the Depth when the Water rose.

Concerning what their Food is, we find it difficult to discover, except by the help of Anatomy; for at what Time soever they are opened, in their Stomach is found Clay, as also in the thick and small Guts, from whence I judge that to be their only Food. In the same Manner likewise is always found in the Intestines of Earth-worms, Earth and Sand; of which when they have fed, they eject the Remainder in a Crooked knobby Form, as is to be seen in the Enterance of their Cells. As for the *Moths* which eat Wool and Furr, there are two Things very considerable, and suiting very well with this Relation; the first, that the Cells they make to themselves, wherein they live, and with which as their House, *Tortoise* like, they move from Place to Place, they make of the Matter next at Hand; the second is, that they feed also on the same: Therefore when you find their Cells, or rather Coats or Cases to be made of yellow, green, blew, or black Cloth, you will also find their Dung of the same Colour: Like as the *Moth* therefore feedeth on the same Substance whereof it maketh its Cell or Case, so do also our Worms; but as I said

said, this is not to be discover'd but by Dissecting them.

Having described the Egg, the Worm, and its Nourishment; the next Thing remarkable will be to consider how long it feedeth: For notwithstanding it may seem strange to limit the Duration of a Creature's feeding, whose Life is, as to us, wholly hid in the Earth and Water; yet it is not unfeasible by considering the differing sizes of these Worms. For whereas the smallest size after one Years feeding, are in length about one *Holland* Inch; and that the second size Worms are then in length about two of the same Inches, it followeth by consequence that every Worm is three Years a feeding before it is fitted for its Change, at which third Year the Worm now fully grown is about three Inches long: They then quit their Cells and the Water to fly in the Air; but as no Creature is without its Enemy, so these Worms when they take the Water to attain their Flight, are immediately preyed on by the Fish; and although they shou'd escape that danger, and attain the use of their Wings, yet are they not free from a second, of falling into the Clutches of the Birds. At all Times of the Year when the Season is fit for fishing, these Worms make a good Bait; for because they live three Years before they take their Flight, they may at all Times of the Year be dug out of the Clay in those Rivers for that use.

*A Description of the outward Parts  
of the Worm, its Colour, and Na-  
ture.*

THE Worm is distinguished into fourteen annular Incisures or Divisions ; the first containeth the Head, the three following the Breast, and the last ten the Belly with its appendant Tail.

In the Head are observable the Eyes covered with an entire smooth Film, having on each side its brushy Hairs. When the Worm sheddeth its Skin, this Film sheddeth also gradually from the Eyes, which Eyes, when the Worm is fledg'd appear like a Net. Somewhat lower under the Eyes appear the two tender Horns, which are as it were distinguished into several Joints. Next appear the Tooth-like Sheres or Cheeks which constitute the Beak, at whose beginning underneath appear several other hairy and filmy Parts, which have some Similitude with those found in *Lobsters* and *Prawns*.

At the first ring in the Breast are joined the two foremost Legs, in which is observable their Shape and their Joints. Their Shape is somewhat like those Creatures which wroot in the Earth, and therefore these Feet have their strongest Motion outwards, whereby like *Moles* they may the better dig away the Earth.

Every Leg hath four Joints and one Nail ; the first Joint is joined to the Breast ; the second to the first, and is somewhat bent, as is also the third ; but withal of a more horn-like Substance than the other, and having small Points sticking out like Teeth of a dirty red Colour, and with  
many

many Hairs on the Sides : The fourth Joint is very small and armed with a Nail, in which are very neatly placed the small Muscles with their Insertions, which very curiously move the Joints of the horn-like bony Legs.

At the second ring of the Breast, being the third of the Body, appear the second Pair of Legs, containing each five Joints, and one Nail, here and there beset with Hairs : Somewhat more backward appear on each side the Knobs, or Wing-cases, in which are inclosed the first Pair of Wings : These are here and there interwoven with Air-vessels, which appear on the out-side like common Veins, or Nerves : When the Worm is ready for shedding its Skin, these inclosed Wings, neatly and curiously folded, appear through the Films or Cases.

At the third ring of the Breast, being the fourth of the Body, appear the second Pair of Wings which are much smaller, and wholly covered with the first Pair, which also in a Manner cover the last Pair of Legs,

The first ring of the Belly, or the fifth of the whole Body, appeareth smooth and even, without conjunction of Legs, Wings, or ought else : To the six following rings, on either side of the Belly, are neatly adjoined the always trembling Gills ; of which it hath on each side six, which are moved so orderly and continually trembling, that it is admirable ; with which according to *Cluvius* the Worm swimmeth ; but mistakingly, for these Parts are truly the Gills of the Worm. The eighth and ninth rings of the Belly, are wholly smooth and even, but the tenth ring of the Belly, or fourteenth of the Body is adorned with three hairy and bushy Tails, besides two crooked appendices which in the Females are not so visible.



As to the Colour of the Worm, the smallest are of a pale blue, somewhat inclining to grey, which rather proceedeth from the transparent Intestines, than from the true Colour of the Worms outside; also the Eyes in all these Worms are a brown black, speckt with pale brown Specks, the which, according to the Ages of the Worm grow blacker. The Wings which as it were bud forth, change gradually, from a pale into a yellowish Colour, which in Time further changeth into a brown blue, till at length it becomes of a brownish black: The whole Worm in Time attaineth a pale yellow, and the blackish Spots on its Back, are gradually changed in a deeper Colour.

Next, in this Worm is to be considered the Sex. The Male hath its Eye in largeness double to that of the Female; but the Body of the Former is much less than that of the Latter, which according to my Observation is the same in all Insects, and is so contrived by Nature, or rather the Omniscient God of Nature, that for the great Number of Eggs the Female beareth, it might have a sufficient containing Place.

Concerning the Nature of this Creature, I can assure you that among all the diverse sorts of Insects I have been acquainted with, I never met with one better natured or more harmless than this; for how often or how much soever it is touched or handled, it seemeth well pleased, and left at rest, it immediately betaketh to its work of making its Cell.

*The Anatomy of the inward Parts of this Insect I shall omit, and refer the Curious Reader who is desirous of being acquainted with such nice particulars, to Dr. Tyson's translation of Swammerdam's Life of the Ephemeron, Quarto Edition. Printed at London, 1681. Where he will find all those Things accurately describ'd.*

*Signs*

*Signs of the Worms being ready for their Change.*

**T**HE common preceeding Signs of the Worms change at the exact Season of the Year, are a warm and dry Spring, a mild Winter, little Rain and Snow, and a soft gliding Water: The particular Signs that the Worm will soon fly, are the swelling of the Wing-cases on the Back, which at that Time attain a thicker and rounder Form than before; and when the Colour of the inclosed Wings Change from a pale yellowish into a grey Colour; which may be seen through the transparent Wing-cases; and farther, when the Wing-cases can be seperated from the Wings, without hurting them.

From what hath been related of the Signs of the full growth of the Worms Wings, it clearly appeareth to which of the Four Orders of natural Change, or Slow growing on of the Limbs, it pertaineth; *viz.* to the second Order, for all the Insects thereunto belonging, Change in the same Manner like our Worm: Which second Order of Change is, that the Worm of the *Ephemeron* having quitted its Egg or Shell, comes forth a six footed Worm, and by Nourishment, increaseth in all its Limbs to a full Growth; so that now on its Back appear the Wings budded out, until it be grown into a Nympha, which loseth not its Motion, and afterwards attaineth the Shape of a flying Creature, by the shedding of its upper Skin or Coat, whereby it now becometh fit for Generation.

The Time of the Worms Change being come, and their Wings in their Cases, having attained their full stiffness and Colour; all the Worms thus fitted and prepared, leave their Cells, betaking themselves to the Water, and out of the Water to Flight, which com-

monly happeneth in the Evening between the Hours of six and seven, as I have observed it in the Year 1671. The 13th. of June.

The other Worms that have not attained that Maturity and Growth, remain yet in their Cells, whilst these make all the Speed possible to gain the Surface of the Water, where each immediately changeth into a wing'd Creature, which Change or Shedding its Skin is so sudden, that by the strictest Observation it would be judged, that they flew through the Waters as they are.

All the Insects that I hitherto am acquainted with, have a certain Time by the God of Nature allowed them, to stretch out their Wings and to dry them before they betake themselves to Flight: But on the contrary, the *Ephemeron* is almost in the same Minute a Worm and a Fly, for where you cast your Eye on the Surface of the Water, and perceive it to bubble, you see them, as it were, flying out of the same, and how swift soever the Hand is in catching the Worm yet swimming in the Water, it cannot bring it unfledg'd to sight.

But how this sudden Expansion of the Wings can be effected is strange to consider, for that they have neither Muscles nor Joints in the midst, being only folded and pleated together in their Cases, and which in a very short Time must shed another Film, but how 'tis difficult to answer; for my Conceptions were, that these Wings ought to have been furnished in their middle Part with Muscles and Joints, as we find in other Insects, by which means they very neatly fold up their Wings in a small room, and by the help thereof also Expand them again; as is chiefly Observable in the Ear-worm, or *Forfica*, which hides very large Wings under a small Shell or Case, as if they had none at all. I conceive the same need of like Muscles  
and



and Joints in the Wings of the *Ephemeron*, but it hath otherwise pleased the great Creator, who is various and wonderful in all his Works, and not to be tied to the same Means in effecting the same thing in the one as in the other.

To say something of my own Observation in Relation to the swift Expansion of its Wings, I conceive that the Water pressing on all sides, and being warmer on its Surface than in the Body thereof, may much assist to this Expansion, by reason that the Blood at that Time moving from the Heart to the Wings, to aid or effect that Expansion, by the warmth may receive a more vigorous Motion; as for Instance, when one hath a Vein opened in his Foot, and holding the same in warm Water, by the warmth his Blood becometh more briskly moved and runs swifter out. So also while all the Blood and Moisture of this Insect, when it sheddeth its Skin is briskly moved, the surrounding Water may be very assistant to add to the Motion of the inclosed Moisture, and so Cause a more vigorous Expansion of the Wings: Therefore that if at that Time their Wings are hurt or cut, they soon Bleed to Death, at least the Wings flag and spread no more. And as assistant to the ready spreading out of the Wings is also the Air which is conveyed into them by a great Number of Air-Vessels, which may be useful to stiffen them, and cause the moisture to exhale out. If the Wing of the Worm, when it is ready for Flight, be cut off and laid in a small Vessel with Water, it will immediately spread itself in the same till in a short Time, it be fully expanded, that it would be ready for Flight if it was but dry and stiff. I have several Times reiterated this Experiment, and thereby learned in what Manner they do Expand, for being laid, as before in the Water



Water, first the great folds do open, whereupon the Wing by degrees becometh extended in its length; and then are Expanded the long folds of the Wing very wonderfully, till at last the Wing spreads out in its full Demensions. When the Wings are yet in their Folds, their Colour is a dark grey, but as they Expand become lighter Coloured.

The *Ephemeron* having quitted the Water, endeavoureth to gain a resting Place on Land, which having attained, it there sheddeth a second Skin, a very thin Film from its whole Body, *viz.* from its Head, Breast, Belly, Legs, Wings, &c. And this second Skin shedding on Land differeth from the first in the Water; for in the first the Worm loseth wholly its former Shape, which it doth not in the second. The Legs and two Tails after the Skin is shed, become double the length, and the third or middle Tail is also shed with the Skin. But more considerable is the Change about the Eyes, for the the horny Film of the Eyes, which in the Worm appeared even and smooth, after the Skin is shed in the Fly appeareth like a Net, being an aggregate of many Eyes.

When I say that the two Eyes in this Insect are made of an aggregate of many small Eyes, which in some of them I have found to be six or seven Thousand, it must not therefore be conceived that they are in Form or Make like the Eyes of other known Creatures, or Men, for in these is found no Humour, but from every Globular partition of the same issueth a Sexangular Filament which terminates on the Net-like Film of these Eyes, and that in the Nerve and Brain, so that the Manner of seeing in these Insects is wholly different from what it is in us, in whom it is effected by a Collection of Nervous Filaments,  
which

which when they see are only touched at the Ends of their Convexities by the visible Qualities and Rays of Light and Colour.

Concerning the second Skin-shedding of the *Ephemeron*, which soon succeedeth the first, it is observable, that in seeking a proper resting Place, the Creature is wholly incurious, settling on whatsoever is in its Way, whether Wood, Stone, Earth, Beast, or Man, and it is thus effected.

It fixeth its Feet armed with short Nails on what it first lighteth on, then being seized with a cold Shivering, the Skin splitteth open in the Middle of the Back in the horny Integument of the same, which first increases forwards so far that the Fly can put forth its Head, then it draweth forth its Legs out of the Skin, while the Nails of the Feet remain fast to that whereon the Flie had taken hold, and which remain with the Shed Skin, and thereby facilitate the stripping thereof: First the Head and Legs are drawn out of the Skin, as you would pull your Foot out of your Shoe, or Head out of a Close sticking Cap, and then the Skin is drawn off the remaining Parts of the Body, by turning the inside outwards as we usually flea Eels, or pull of a Glove the inside outwards.

The *Ephemeron* having now a second Time shed its Skin flieth again to the Water, on whose Surface it supports itself, flying sometimes higher and sometimes lower, and between whiles resting on its Tails beateth its Wings together, which Tails, the better to support the Creature, are hollow and beset with Hair, and being fill'd with Air, drive and swim the better on the Water without sinking.

In this wing'd and last State, which is the Perfection of the Creature, it generates; the Female shooteth her Eggs on the Surface of the Water, on  
which

which the Male casteth its Milt or Seed ; to which End, possibly, it is provided with larger Eyes, that it might the better discern the Eggs of the Female in the Water. The *Ephemeron*, never layeth her Eggs in the Body of the Water, nor on Land, nor in the Air, but only upon the Surface of the Water, as beforementioned, which afterwards sink by their own Gravity : All which in that short Time of their Life, in this State is effected in that haste and swiftness, that it is impossible to make a narrower search therein. During the whole Life of this Fly it eateth nothing ; as is common to many other kinds of like Insects.

The *Ephemeron* flying up and down upon the Surface of the Water, liveth in that State between four and five Hours ; that is from six or half an Hour after in the Evening, till eleven of the Clock of the same Night ; which I have observed by inclosing one in a Box in my Chamber, and with some Care remarkt the Time of its Life ; in that very short Time they all die, and that which is observable, not any of them die a Natural Death on the Land ; for as soon as they have shed their second Skin immediately they fly to the Water.

Besides that the Life of the *Ephemeron* in the State of a Flie is so short, an infinite Number are devoured by the Fish e're they come out of the Water ; and of the other who escape that danger by Flight, many are eat by the *Swallows*, and other Birds ; and having escaped these two dangers, if in their flying they come too nigh the Water, or play therein on their Tails, they are caught by the Fish : It is remarkt, that when the *Ephemeron* is in its State of Perfection, then are the *Roach* which feed thereon very fat, and of a sweet and pleasant Taste.



If the Reason be asked ( the forementioned dangers excepted ) of the short Life of this Flie, it is to be considered that the Eggs in the Worm, while yet in the Water are perfect, so that as soon as the Flie by shedding its Skin, and extending its Members is as it were New-born, the Eggs are ready for ejection. Add hereto that these Eggs when first hatched have no need of the Parents Care as in other Animals: And because the only Reason of their Change into a Flie seemeth to be for Generation, which effected, the Fly dieth; and to this End it is for three Years growing in the Water and Clay, in the Form of a Worm, as also to this End it changeth its Form into a Flie, till having cast its Seed, it endeth its Life.

The *Ephemerons*, as was said at first, do flie for three Days on the Surface of the Water; but with this distinction; that those which have risen many thousands of them out of the Water, and flown the first Day, die the same Day, living out of the Water in the whole but about five Hours: On the second Day a great Number rise again out of the Water, and flie, and die the same Day, and so on the third Day; and then all cease till the same Season the next following Year.

The Truth hereof is known to many Persons, who live near those Rivers, who see the same Yearly; yet I have seen them also flie the fourth Day, but in no great Number; as on the fifth Day also; and therefore I judge these Worms were later fitted for Flight than those that flew before; or were hindered by sickness or otherwise: As also that those that appear'd sooner, where sooner fit for their Flight; and for this reason I see not but that the *Ephemeron* might appear some few Days sooner or later than the precise Time; for that



that by Experience it is found that they sometimes appear about fourteen Days sooner or later, according as the Season of the Year is more or less agreeable.

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## *Moral Reflections on the short Life of the Ephemeron.*

THE uncommon cast of Invention, and the Freedom of Imagination, which shine through this amusing little Piece, will recommend it to Persons of a lively thought: To engage their attention yet more earnestly, I may justly say that the Author's bold Allusion conveys an Instruction of the greatest Moment; a Lesson the most effectual of any in the Compass of Philosophy, to humble the Vanity and Ambition of Men.

Cicero, in the first Book of his *Tusculan Questions*, finely exposes the vain Judgment we are apt to form of the Duration of human Life, compared to Eternity. In illustrating this Argument, he quotes a Passage of Natural History from *Aristotle*, concerning a Species of Insects on the Banks of the River *Hypanis*, that never out-live the Day, wherein they are born.

To pursue the thought of this elegant Writer; let us suppose one of the most robust of the *Hypanians* (so famed in History) was in a Manner coeval with Time itself; that he began to exist at the break of Day; and that from the uncommon strength of his Constitution, he has been able to shew himself active in Life through the Numberless *Minutes* of ten and twelve Hours. Through so long a Series of *Seconds*, he must have acquired  
vast

vast Wisdom in his Way, from Observation and Experience. He looks upon his Fellow-Creatures, who died about Noon, to be happily delivered from the many Inconveniences of Old Age ; and can perhaps recount to his great Grandson a surprising Tradition of Actions, before any Records of their Nation were extant. The Young swarm, who may be advanced one Hour in Life, approach his Person with Respect, and listen to his improving Discourse. Every Thing he says will seem wonderful to that short-lived Generation. The compass of a Day will be esteemed the whole Duration of Time ; and the first Dawn of Light will, in their Chronology, be stiled the great *Æra* of their Creation.

Let us now suppose this venerable Insect, this *Nestor* of *Hypanis* should, a little before his Death, and about Sun-set, send for all his Descendants, his Friends and Acquaintance ; out of the Desire he may have to impart his last Thoughts to them, and to admonish them with his departing Breath. They meet, perhaps, under the spacious shelter of a Mushroom ; and the dying Sage addresses himself to them, after the following Manner.

Friends and Fellow-Citizens ; I perceive the longest Life must have an End : The Period of mine is now at hand : Neither, do I repine at my Fate ; since my great Age is become a Burden ; and there is nothing new to me under the Sun. The Calamities and Revolutions I have seen in my Country ; the manifold private Misfortunes to which we are all liable ; and the fatal Diseases incident to our Race ; have abundantly taught me this Lesson : That no Happiness can be secure nor lasting, which is placed in Things that are out of our Power. Great is the Uncertainty of Life ! A

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whole

whole Brood of Infants has perished in a Moment by a keen Blast : Shoals of our straggling Youth have been swept into the Waves, by an unexpected Breeze : What wasteful Deluges have we suffered from a sudden Shower ? Our strongest Holds are not proof against a storm of Hail : And even a dark Cloud makes the stoutest Hearts to quail.

I have lived in the first Ages, and conversed with Insects of a larger size and stronger Make, and ( I must add ) of greater Virtue, than any can boast of in the present Generation. I must conjure you to give farther Credit to my latest Words, when I assure you, that yonder Sun which, now appears Westward beyond the Water, and seems not to be far distant from the Earth, in my Remembrance stood in the Middle of the Sky ; and shot his Beams directly down upon us. The World was much more enlightened in those Ages ; and the Air much warmer. Think it not Dotage in me, if I affirm that glorious Being moves. I saw his first setting out in the East ; and I began my Race of Life near the Time when he began his immense Career. He has for several Ages advanced along the Sky with vast Heat, and unparellel'd Brightness ; but now, by his Declension, and a sensible Decay ( more especially of late ) in his Vigour ; I foresee, that all Nature must fail in a little Time ; and that the Creation will be buried in Darkness, in less than a Century of Minutes.

Alas, my Friends ! How did I flatter myself with the Hopes of abiding here for ever ! How Magnificent are the Cells, which I hollowed out for myself ! What Confidence did I repose in the Firmness and Spring of my Joints, and in the Strength of my Pinions ! But, I have lived enough to Nature ; and even to Glory : Neither will any of you,  
whom

whom I leave behind, have equal Satisfaction in Life in the Dark, declining Age, which I see is already begun.

Thus far, this ingenious Writer pursues his Fiction upon the thought of *Cicero*: Neither will it seem extravagant to those, who are acquainted with the Manner of Instruction practised by the early Teachers of Mankind. *Solomon* sends the Sluggard to the *Ant*: And, after his Example, we may send the Ambitious or the covetous Man, who seems to overlook the shortness and uncertainty of Life, to the little Animals upon the Banks of the *Hypanis*: Let him consider their transitory State, and be Wise. We, like the *Ephemeris*, have but a Day to live: The Morning, the Noon, and the Evening of Life, is the whole Portion of our Time: Many perish in the very Dawn; and the Man (out of a Million) who lingers on to the Evening Twilight, is not accounted Happy.

“ Those Animals whose Circle of living is limited  
 “ to four or five Hours, are yet as long-liv’d, and  
 “ possess as wide a Scene of Action as a Man, if  
 “ we consider him with an Eye to all Space, and all  
 “ Eternity. What a Bustle then do we make about  
 “ passing our Time, when all our Space is but a  
 “ Point? What Aims and Ambitions are crowded  
 “ into this Instant of our Life, which (as *Shakespear*  
 “ finely Words it) is rounded with a Sleep! Who  
 “ knows what Plots, what Atchievements a Mite  
 “ may perform in his Kingdom of a Grain of Dust,  
 “ within his Life of some Minutes; And of how  
 “ much less Consequence than even this, is the Life  
 “ of Man in the Sight of that God, who is for  
 “ ever, and for ever.



A DESCRIPTION of  
THE FLY, A SONG.

**B**USY, curious, thirsty Fly,  
Drink with me, and drink as I,  
Freely welcome to my Cup,  
Could'st thou sip and sip it up;  
Make the most of Life you may,  
Life is short, and wears away.  
Life is short, &c.

II.

Both alike are mine and thine,  
Hasten quick to their decline;  
Thine's a Summer, mine no more,  
Tho' augmented to threescore:  
Threescore Summers when they're gone,  
Will appear as short as one,  
Will appear, &c.

The right Use of this Reflection is, not to make Men regardless of Posterity, nor to slacken their Diligence in the pursuit of any kind of Knowledge that becomes a reasonable Mind; nor yet, to abate their Industry, in endeavouring, by honest Means, to acquire a comfortable Subsistence for themselves and their Children; on the contrary, our very Nature prompts us to Action and Contemplation; and the indolent, listless Person, who delivers himself up to Idleness, and whose whole Time is a Blank, grows tired of himself; and is every Hour oppressed with his own Laziness: What then are we to learn from our precarious, transitory Condition? The most important Precept of Wisdom; the great Document of human Prudence, which we should perpetually inculcate to ourselves, from Youth to Age; and imprint it on our Hearts, as the particular and lasting Signature of sound Sense; namely, That there is no Consideration in Life, sufficient to tempt a wise Man to Sacrifice one Truth, or one Virtue, to the Folly of Avarice, or the Madness of Ambition. *Free-Thinker*, N<sup>o</sup> 114.

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